ENVIRONMENTAL IMPACT STATEMENT

UPPER NEW RIVER WATERSHED

JASPER AND BEAUFORT COUNTIES, SOUTH CAROLINA

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
AND
FOREST SERVICE

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Upper New River Watershed Project
Beaufort and Jasper Counties, South Carolina

FINAL ENVIRONMENTAL IMPACT STATEMENT

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Soil Conservation Service

Sponsoring Local Organizations

Beaufort-Jasper Soil and Water Conservation District
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AUGUST 1975

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USDA SOIL CONSERVATION SERVICE ENVIRONMENTAL IMPACT STATEMENT

Upper New River Watershed Project
Beaufort and Jasper Counties
South Carolina

Prepared in accordance with
Sec. 102(2)(C) of P.L. 91-190

Summary Sheet

I. Final

II. Soil Conservation Service

III. Administrative

IV. Description of project, purpose, and action

A project for watershed protection, flood prevention, and drainage in Jasper County, South Carolina, to be implemented under authority of the Watershed Protection and Flood Prevention Act (PL 566, 83d Congress, 68 Stat. 666), as amended.

Watershed measures include: (1) land treatment measures for water management and timber and wildlife habitat improvement, and (2) multiple purpose flood prevention and drainage channels. For 21 of the 28 miles of planned channel work, there is no or practically no existing channel. Seven miles have been previously modified. Nineteen miles have ephemeral flow and nine miles are intermittent. Adjacent land use is forest production.

V. Summary of environmental impacts

Floodwater and drainage problems will be reduced on 12,100 acres. Water quality in Upper New River will be improved and increased flow during dry periods will be beneficial to the fishery habitat. The proposed channel work will directly benefit 100 landowners.

About 12 jobs will be created as a result of the project. In addition, about 28 man-years of employment will be provided during the installation period.

Approximately 334 acres of land will be committed to the installation of the planned project. The present use is 329 acres of forest land and five acres of open land. The future use will be 184 acres of forest land and 150 acres of open land.

Health hazards will be reduced through improved septic tank absorption field operation and vector control.

Improved hydraulic conditions of the channels will cause the flood stages resulting from the one percent chance storm to increase about 0.6 feet immediately below the construction area.

Noise, dust, and smoke pollution will increase during construction.

VI. List of alternatives considered

A. A non-structural measure plan to encourage land use compatible with the present flooding and poor drainage

B. No project

VII. Comments have been received from the following agencies:

Department of the Army
U.S. Department of Commerce
Department of Health, Education and Welfare
U.S. Department of the Interior
Department of Transportation
U.S. Environmental Protection Agency
South Carolina Division of Administration (State Clearinghouse)
South Carolina Water Resources Commission (for the Governor)

VIII. Draft Statement Transmitted to CEQ on March 31, 1975.

USDA SOIL CONSERVATION SERVICE

FINAL ENVIRONMENTAL IMPACT STATEMENT
for
Upper New River Watershed
Beaufort and Jasper Counties, South Carolina

Installation of this project constitutes an administrative action. Federal assistance will be provided under authority of Public Law 83-566, 83d Congress, 68 Stat. 666, as amended.

SPONSORING LOCAL ORGANIZATIONS

Beaufort-Jasper Soil and Water Conservation District
Jasper County Council

PROJECT OBJECTIVES AND PURPOSES

The objectives of the watershed project are to improve economic and environmental conditions of the area through improved water management. More specific objectives during planning and agreed to by the Service are: (1) install necessary land treatment measures; (2) reduce flooding and provide adequate drainage outlets in the Calfpen Bay area; (3) reduce mildew and other water nuisance damages to homes and other improvements in the low income area in the upper reaches of Calfpen Bay; (4) preserve and enhance fish and wildlife resources; and (5) improve the economic and social environment of the area.

PLANNED PROJECT 1/

Land Treatment Measures

Land treatment measures will include farm and field laterals, wildlife plantings, tree planting and timber stand improvement, and wildlife habitat management.

Land treatment measures on 11,600 acres of cropland will consist of conservation cropping systems, ponds, irrigation systems, crop residue management, land grading and leveling, and open and tile drains.

Land treatment on 7,000 acres of pasture and hayland will consist of pasture and hayland planting and management, open and tile drains, ponds, and brush control.

Drainage measures will enable landowners and operators to plant and maintain food and cover for wildlife game species. These plantings, combined with forest management practices such as prescribed burning and mechanical methods to remove much of the dense understory, will improve habitat for deer, turkey, and other wildlife species which favor open-type forest on 20,000 acres.

The forest land will be managed for timber, wildlife, and recreation use to the extent that such management is compatible with sound watershed management. Forest management practices will include tree planting on 1,620 acres, hydrologic stand improvement on 2,620 acres and improvement cutting on 4,800 acres. Improvement cutting will remove non-commercial trees while considering wildlife, watershed, and other environmental values in existing hardwood and softwood stands.

To provide for proper installation and maintenance of approved measures, forest management plans will be prepared and included as a part of conservation plans for 50 landowners covering 20,000 acres.

Structural Measures

Structural measures to be installed consist of about 28 miles of multiple purpose channel work for flood prevention and improved drainage in the Calfpen Bay portion of the watershed. The location of the planned channel work is shown on the Project Map.

Canal No. 1 is about nine miles long with a bottom width ranging from seven to 30 feet. Canal No. 2 is approximately seven miles long with a bottom width of from four to 16 feet. The remaining 12 miles will be laterals with a bottom width of four feet, except

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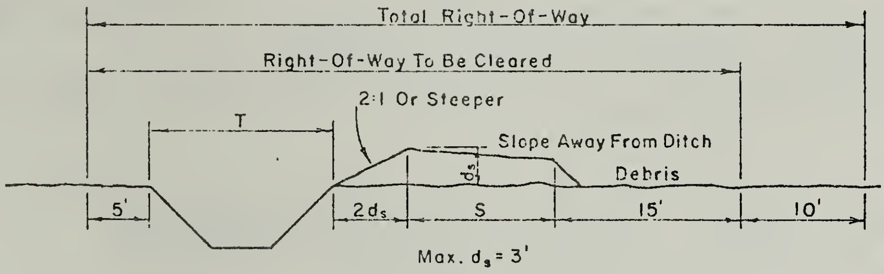
1/ All information and data, except as otherwise noted by reference to source, were collected during watershed planning investigations by the Soil Conservation Service and Forest Service, U.S. Department of Agriculture.

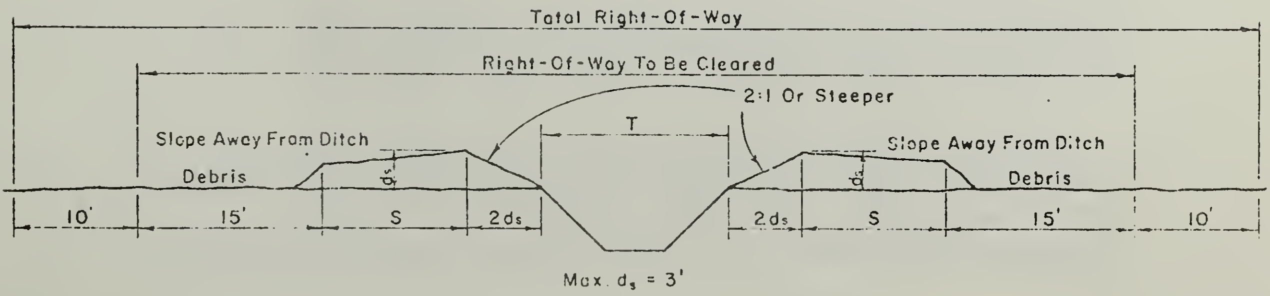
Lateral No. 1, which varies from four feet to eight feet.

Channel depth will normally be five feet to provide an outlet for tile drainage. Two segments of 1,000 feet each on Canal No. 1, just upstream of State Secondary Highway 115 will be excavated to a depth of more than five feet, but less than 10 feet to expose the underground aquifer and help preserve a wetland habitat condition below the construction area by providing a dependable stream flow. Two pits will be excavated in the channel to trap sediment. One will be located at the lower end of the channel work and the other just above the water holding pools. Channel side slopes will be 1:1, except where the water holding pools and sediment pits are constructed. In these areas, side slopes will be 2:1.

Channels with a bottom width of 16 feet or less will be excavated from one side and have spoil placed only on one side. The bottom width of about five miles on Canal No. 1 exceeds 16 feet and will have spoil placed on both sides. All other proposed channel has a bottom width of 16 feet or less. The spoil will be shaped to form a travelway for maintenance. Side inlet pipes will be installed at locations along the channel where outside surface water concentrates. This will permit the water to enter the channels without causing erosion.



TYPICAL CROSS SECTION - SPOIL SHAPED ONE SIDE



TYPICAL CROSS SECTION - SPOIL SHAPED BOTH SIDES

Appropriate permanent vegetation will be established on the spoil and channel banks immediately following construction. Temporary vegetation will be established when conditions delay the establishment of permanent vegetation at the time of construction. Vegetation species and the method of establishment will be specified in a vegetation plan prepared for the project. An inspection will be made after the first growing season to determine the adequacy of the vegetative cover. If any areas are found deficient, they will be revegetated.

The channels were designed to remove the runoff from the two year frequency - 24 hour duration storm within one day following the cessation of rain, for open land and within five days for forest land. The design capacity was based on the Cypress Creek formula, $Q = CM^{5/6}$, with a C of 52 for open land and 10 for forest land, and with M equal to the drainage area in square miles. This removal rate is considered adequate for intended uses. The channel system, based on SCS design requirements and a study of channel excavated in similar soils, is expected to be stable.

The proposed channel work will involve nine miles of intermittent streams and 19 miles of ephemeral streams. About seven miles of the channel have been modified by man within the past 15 years. None of the streams involved are considered to have any value as fishery habitat.

Easements will be required on 334 acres for the channel work, of which 290 acres of forest land will be cleared.

During construction, the following actions will be taken to control erosion and pollution:

a. Sanitary facilities will be provided according to the requirements of the South Carolina Department of Health and Environmental Control.

b. Measures will be provided at equipment and repair areas to prevent contaminants from reaching streams and ground water.

c. All work areas will be seeded with temporary or permanent vegetation immediately following construction to reduce channel bank and spoil bank erosion.

d. Debris will normally be burned or buried in open areas and stacked in wooded areas, but will be disposed of in accordance with regulations of the South Carolina Department of Health and Environmental Control.

The project will comply with the Historic and Archeological Data Preservation Act, Public Law 93-291, and the Historic Properties Preservation Program, Public Law 89-665 (Section 106). If artifacts or other items of archeological or historical significance are uncovered during construction, the Institute of Archeology and Anthropology and the National Park Service will be notified.

No displacement of people, businesses or farm operations are expected as a result of the installation of the project.

The proposed project is compatible with the goals of the Lowcountry Resource Conservation and Development Project and the Lowcountry Regional Planning Council. Installation of project measures will conform with local, state and federal laws as related to air and water quality, health and safety standards, necessary permits, etc.

Operation and Maintenance

Land treatment measures will be maintained by the owners and operators of the land on which they are installed, in cooperation with the Beaufort-Jasper Soil and Water Conservation District. The South Carolina State Commission of Forestry, in cooperation with the U.S. Forest Service, will furnish technical assistance to private landowners necessary for forest land treatment measures under the going Cooperative Forest Management Program. They will also continue to furnish fire protection under the going Cooperative Forest Fire Control Program. It is the policy of the South Carolina State Commission of Forestry to practice on forest lands under its jurisdiction, and to promote on other ownerships where applicable, the principles of high quality multiple use and sustained yield management, and to promote practices to protect and enhance environmental quality in the management of all forest ownerships. Multiple use management considers and includes provision for timber production, grazing, fish and wildlife, air, water, soil, recreation, aesthetics, scenic beauty, and environmental quality, and wild, wilderness and natural areas, scientific research, and ecological considerations.

Specific maintenance agreements between the Service and the Jasper County Council will be executed prior to issuing bid invitations for construction. The Jasper County Council will operate and maintain the structural measures. The operation and maintenance will be performed as indicated in the South Carolina Watershed Operations and Maintenance Handbook, prepared by the Soil Conservation Service. The work will include fertilizing, maintaining and controlling vegetation, repair of damage, replacement of side inlet pipes, removal of accumulated debris, removal of sediment from sediment traps, and maintaining travelway to assure access.

Funds for this operation and maintenance, estimated to be $8,050 annually, will be provided by the Jasper County Council.

For three years following installation of the measures, the Service and the Jasper County Council will make joint inspections annually,

after unusually severe floods or after the occurrence of any other unusual event that might adversely affect the measures. Inspections after the third year will be made annually by the Council. One copy of their report will be sent to the Service representative and one copy filed by the sponsors and made available for authorized inspection.

Project Costs

Cost estimates are as follows:

	PL-566	Other	Total
Land Treatment	$ 78,100	$608,570	$ 686,670
Structural Measures			
Construction	400,200	134,400	533,600
Engineering	36,000	-	36,000
Administration	43,000	3,500	46,500
Land Rights	-	133,650	133,650
Total Structural Measures	479,200	275,050	749,750
TOTAL PROJECT	$557,300	$879,120	$1,436,420

ENVIRONMENTAL SETTING

Physical Resources

The Upper New River Watershed consists of 134,000 acres in the Atlantic Coast Flatwoods resource region of southern South Carolina. This area covers parts of Jasper and Beaufort Counties. There are 126,000 acres of the watershed in Jasper County and 8,000 acres in Beaufort County. The watershed's 30 mile length extends from near Pineland, at the northwest end, to South Carolina State Highway 170, near the community of Prichardville, at the southeast end. Elevations within the watershed range from 100 feet mean sea level near Pineland to five feet in New River channel near Prichardville. The Coosawhatchie River Basin lies northeast of the watershed and the Savannah River passes to the southwest. Ridgeland, with a population of 1,192, is located near the center of the watershed on its eastern boundary. The communities of Tillman, Hardeeville, and Gillisonville are located near the boundaries of the watershed. Savannah, Georgia is 25 miles southwest.

The population of the watershed is about 4,000. All of the families are classed as rural, but 79 percent of these are rural

non-farm[1]. Approximately 36 percent of the families of the area have an annual income under the national poverty level.

Upper New River is part of the drainage area of New River which outlets into the Atlantic Ocean about 13 miles south of Prichardville, South Carolina. It is in the South Atlantic-Gulf water resource region and the Combahee River subregion as designated by the U.S. Water Resources Council[2]. This region consists of the low, nearly level parts of the Atlantic and Gulf Coastal Plains. The annual precipitation averages 50 inches. The average annual temperature is 65 degrees Fahrenheit. The freeze-free season is approximately 300 days[3]. Most soils in the region have sandy or loamy surface layers over grayish loamy subsoils that have higher clay content than the surface layers. Some soils are sandy throughout, and some have sandy or loamy surface layers over clayey subsoils. Generally, soils with the highest clay content have the slowest permeability and internal drainage. Unless ditched or drained, most of the soils have water tables within 15 inches of the soil surface at least two months per year. With proper drainage and management, these soils are well suited for agriculture and woodland production. The present land use by acres of the watershed is as follows: forest land 107,892, cropland 11,653, pastureland 7,182, and miscellaneous 7,273.

The principal soil series in the watershed and the dominant

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[1] 1970 Census of Population, Bureau of the Census, U.S. Department of Commerce.

[2] Water Resources Regions and Subregions for the National Assessment of Water and Related Land Resources, July 1970, Water Resources Council, Washington, D.C.

[3] Atlas of River Basins of the United States, prepared by U.S. Department of Agriculture, Soil Conservation Service, June 1963.

characteristics of each are as follows[1]:

Soil Series	Slope Range (percent)	Permeability	Depth
Goldsboro	0-2	Moderate	Deep
Yemassee	0-2	Moderate	Deep
Lynchburg	0-2	Moderate	Deep
Murad	0-6	Moderate	Deep
Rains	0-2	Moderate	Deep
Paxville	0-2	Moderate	Deep
Ocilla	0-2	Moderate	Deep
Deloss	0-2	Moderate	Deep
Ogeechee	0-2	Moderately slow	Deep
Seabrook	0-2	Rapid	Deep
Osier	0-2	Rapid	Deep

Classification of watershed soils by capability class and sub-class is shown below[2]:

Capability Class and Sub-Class	Percent	Number of Acres
IIw	27	36,180
IIIw	68	91,100
Vw	3	4,020
IIs	2	2,700

The land capability classification system is the grouping of soils to show, in a general way, their suitability for most kinds of field crops, pasture, and wildlife plantings. It is a practical classification based on the limitation of the soils, the risk of damage when they are used, and the way they respond to treatment. The letter "s" indicates soil with a low available water capacity, and "w" represents a wetness hazard. Capability Classes II and III, include those soils suitable for annual or periodic cultivation of row crops. Capability Class V, includes those soils considered unsuitable for cultivation of row crops,

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1/ Soils Survey, Beaufort and Jasper Counties, South Carolina (field work completed, manuscript being developed), U.S. Department of Agriculture, Soil Conservation Service.

1/ Ibid

but can be used for pasture and wildlife plantings.

Most of the 4,400 acres of flood plain soils along Upper New River and its tributaries are Class Vw land. The major problem on this land is lack of adequate outlets. Standing water is present throughout most of the year. Land use in the flood plain is forest.

The geologic features of the watershed can be described as a series of onlapping terrace deposits laid down during previous fluctuations of the ocean level. Alternating periods of stable ocean levels and times of recession caused the sediment coming from the upland to be deposited in uneven bands across the watershed. The terrace deposits consist of medium to coarse grained sand with some horizons and lenses of clayey sand and stiff clay. Terraces located within the watershed are[1]:

Recent Terrace - shoreline at present sea level
Pamlico Terrace - shoreline about 25 feet above present sea level
Talbot Terrace - shoreline about 42 feet above present sea level
Penholoway Terrace - shoreline about 70 feet above present sea level
Wicomico Terrace - shoreline about 100 feet above present sea level

All of the terraces were formed during the Pleistocene Age, except the recent deposits. Soft sandstone and thin-bedded limestone are the sedimentary rocks underlying the terraces. The sandstone and limestone were deposited during the Tertiary Age.

There are no mines or quarries within the watershed boundary. The only commercial quarry operating in the vicinity is a sand excavation operation in western Jasper County[2]. Possible commercial deposits of sand occur within the watershed, but no plans for operations are known.

Ground water is the main source of water supply for all of the watershed residents. Wells vary in depth from 30 feet to greater than 400 feet. Varying quantities of water are obtained from the surface sand deposits, and at greater depths from the Hawthorn Formation and the (Santee-Ocala) Limestone.

"Water from the terrace sands is usually of good quality ranging from rather soft to moderately hard and having a bicarbonate content considerably lower than the water from the older deposits. The average yield of 64 wells drilled in terrace sands was found to be 44 gallons per minute, with a maximum yield of 130 gallons per minute and a

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[1] Geology of the Coastal Plain of South Carolina, U.S. Geological Survey Bulletin 867, C. Wythe Cook, 1936.

[2] South Carolina Mineral Producers Directory, South Carolina State Development Board, Circular 2, 1972.

minimum of 10 gallons per minute. The average hardness was 80 parts per million, which is classified as moderately hard"[1/]. A water pressure exists in the sand deposits of the upper end of the watershed. Water pits and wells extending through a surface clay layer into an underlying sand acquifer allows the ground water level to rise from four to six feet.

The Hawthorn Formation and the (Santee-Ocala) Limestone furnish the "deep" water for the area. "The average yield of 32 wells drilled into the Cooper-Santee (Ocala) unit was 464 gallons per minute, but the yield covered a wide range from a minimum of five gallons per minute to a maximum of 2,000 gallons per minute"[2/]. Maximum consumption data from sampled watershed wells, their chemical analyses, and state drinking water standards are shown in Appendices D and E.

The watershed is within the southern climatic division of the state. The topography is generally flat with slightly rolling low hills. Elevations range from five feet in the southern end of the watershed to 100 feet in the north. The average annual precipitation is 50 inches, with five percent occurring in spring, 40 percent in summer, 30 percent in fall, and 15 percent in winter. The average annual temperature is 65 degrees Fahrenheit. Average temperature for the winter months is 50 degrees and 80 degrees for the summer months[3/]. Growing seasons are long enough for a double cropping system. Farm families generally produce both spring and fall crops of fresh vegetables for sale at the local markets. Small grains are produced for cattle grazing during winter and spring seasons. Cattle endure the mild winters without shelter, but require supplementary feed during late winter and early spring.

Upper New River heads in Jasper County near the community of Pineland. It is an intermittent stream draining a system of bays and swamps. Savannah Branch and Gillison Branch are two of the major tributaries in its upper reaches. Downstream tributaries include Calfpen Bay, Great Swamp, Broadwater Creek, Kato Bay, Bagshaw Swamp, Causeway Swamp, Bob Dam Swamp, and Two Bridge Swamp. The name of New River is applied to the drainage area as it approaches the Beaufort-Jasper County line. The bays and swamps above this area dry up occasionally, but the stream becomes perennial at this location.

Field observations concerning stream classifications indicate the ephemeral drains consist of roadside ditches, manmade canals, and drains in cultivated fields. Calfpen Bay, Savannah Branch, and Gillison

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[1/] Progress Report on Ground Water Investigations in South Carolina, G. E. Siple, Bulletin 15, Research Planning and Development Board, Columbia, South Carolina, 1946.

[2/] Ibid

[1/] Climatic Guide for South Carolina, Norton D. Strommen, U.S. Department of Commerce, November 1965.

Branch are frequently dry. Great Swamp is usually dry or low enough for the water to become stagnant at least once each year. Approximately 10 miles of drainage canals have been installed by owners in the area west of State Secondary Highway 115. An estimated five miles of these canals are the principal channel for Upper New River. The general stream characteristics for Upper New River are shallow depths, poorly defined banks, swampy areas, and heavily timbered areas on the adjacent banks. At bridge crossings, channels have been excavated presenting a "false" view of general channel character.

Upper New River, as part of New River, is classified by the South Carolina Department of Health and Environmental Control as a Class "SB" stream[1/]. This classification is assigned to a stream after a public hearing as being the stream quality desired. The actual stream quality may be better or worse than the classification assigned. South Carolina policy is to improve all stream quality. The South Carolina Department of Health and Environmental Control has the authority to enforce water quality standards. A Class "SB" tidal salt water stream has the standard of being suitable for bathing and any other uses, except shellfishing for market purposes. It is also suitable for uses requiring water of lesser quality. (See Appendix F.) Surface waters within the watershed are not used for public consumption.

There are very few farm ponds within the watershed. Some of these are used for catfish farming. There are no lakes of significance within the watershed. The city of Beaufort obtains raw water from the Savannah River. This water is transported by canal and is elevated in its channel above the waters of the swamps as it flows across Upper New River Watershed.

Economic Resources

All of the land in the watershed is in private ownership. The size of ownership ranges from a quarter acre house lot to a 50,000 acre plantation. Approximately 20,000 acres are owned by forest industries.

There are approximately 75 holdings which meet the classification of a farm. The average size of a farm is 414 acres. About 38 percent are classified as commercial farms, with an average size of 968 acres. The average value of land and building is $76,800 per farm. This amounts to $156,100 per commercial farm. The average value of land ranges from $50 per acre for swamp land to $600 per acre for prime farm land.

The major farm enterprises are beef cattle and cash crops. The principal crops grown are corn, soybeans, hay, and vegetables. The

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[1/] Stream Classifications for the State of South Carolina, South Carolina Department of Health and Environmental Control, 1972.

average annual yields per acre are as follows: corn - 60 bushels; soybeans - 22 bushels; hay - 2.5 tons; tomatoes - 7,000 pounds; and watermelons - 325 melons. Catfish farming is a relatively new enterprise in the area. A number of catfish ponds have been built within the watershed in the past four years covering about 75 acres.

Upland forest constitutes 96 percent of the total forest land, or 103,492 acres. Flood plain forest constitutes four percent, or 4,400 acres. Upland forest types are pine - 44 percent; pine-hardwood - 29 percent; and hardwood - 27 percent. The principal natural species of the upland are loblolly pine, longleaf pine, slash pine, pond pine, red cedar, red oak, white oak, yellow poplar, sycamore, black gum, sweet gum, persimmon, ash, hickory, and dogwood. Other associated species are elm, maple, beech, sourwood, black cherry, planted loblolly, longleaf, and slash pine. Principal flood plain species are pond pine, red maple, cypress, yellow poplar, ash willow, sycamore, red gum, cottonwood, black gum, tupelo gum, willow oak, water oak, and bay.

The forest land is 70 percent well stocked with merchantable species. Forty-four percent is sawtimber size averaging 700 board feet per acre of pine and 500 board feet per acre of hardwood. Twenty-two percent is poletimber size averaging 1,000 cubic feet per acre of pine and 150 cubic feet per acre of hardwood. Thirty-three percent is seedling and sapling size and one percent is non-stocked.

The production and sale of pine pulpwood is one of the most important economic enterprises within the region. Competition is keen with major markets being in Charleston, South Carolina and Savannah, Georgia. Ready markets are also available for sawtimber, poles, and veneer logs. Given protection and proper management, the forest stands will contribute considerably to the future economy of the watershed area.

Accessibility of farms to roads and markets is provided by Interstate Highway 95, numerous U.S. and State highways and the Seaboard Coast Line Railroad.

The civilian work force in Jasper County is 3,600. Eighty-five percent of the work force is employed in nonagricultural functions, 11 percent are employed in agriculture, and four percent are unemployed. The median family income is $5,473 per year. About 60 percent of the farms rely wholly on family labor.

The watershed lies within the Ashley-Combahee-Edisto River Basin study area. Jasper and Beaufort Counties are part of the Lowcountry Resource Conservation and Development Project area, and within the Lowcountry Regional Planning Council.

Plant and Animal Resources

The South Carolina Department of Health and Environmental Control maintained a water quality monitoring station at the U.S. Highway 17 crossing of New River from 1963 through 1973. Results of tests showed

that water quality in the stream varied widely. Biochemical oxygen demand (BOD) ranged from 0.9 to 16.3 mg/1; color from 70 to 280 units; turbidity from one to 22 mg/1; and pH from 4.6 to 6.9. Water standing for long periods in the Calfpen Bay area acquires color from organic stains and turbidity from organic detritus. Saprophytic bacteria also play a role in increasing turbidity. These degrees of turbidity, color, BOD, and pH are synergistic in harmful effects on fish.

Streams in the Calfpen Bay are either ephemeral or intermittent and provide no fishery resource, with the possible exception of some fish food organisms. Below this area, however, is a redfin pike fishery which is highly prized by local fishermen. During periods of low flow, thousands of fish die because of water quality deterioration. The South Carolina Wildlife and Marine Resources Department operates a well which is located just above State Secondary Highway 115 for low flow augmentation. The yield from the well is about 600 gallons per minute, which is not sufficient to have an appreciable effect on downstream water quality.

Within the area of proposed channel work, the forest land occupies flat, low-lying, wet areas. On the lower elevations, the dominant tree species are red maple and pond pine with a dense understory of sweet bay, smilax and switch cane. Loblolly pine is the principal species in this area with an understory of gallberry and wax myrtle. The value of this area as habitat for wildlife is very low. The most prevalent observed use is from blackbirds which roost in the area. Fields and field edges provide some habitat for species of open land wildlife common in Jasper County, however, drainage is not adequate for good quail habitat or other species requiring similar habitat. A few wood ducks move into this area during wet periods in search of food. No suitable waterfowl habitat exists within this area.

Endangered wildlife species which may occur in the Calfpen Bay area are the bald eagle, osprey, and alligator. The probability of occurrence of any of these is small because of extremely poor feeding areas and habitat.

No construction will occur in the area of the watershed below Calfpen Bay which is recognized as very valuable habitat. This area includes 4,400 acres of flood plain hardwood forest and supports a variety of wildlife species including deer, turkey, waterfowl, and alligators.

Recreational Resources

Recreational opportunities in the watershed are limited primarily to hunting and fishing. The Sargeant Jasper Country Club, located south of Ridgeland, has a golf course. Although about 80 percent of the watershed is forested, most of the area is controlled by private clubs or in large ownership and not available to the general public.

Outside the watershed but within Jasper County, the South Carolina Wildlife and Marine Resources Department has cooperative agreements

with landowners to provide game management assistance on about 3,500 acres. A permit is required to hunt on these lands.

The U.S. Fish and Wildlife Service administers the Savannah River Wildlife Refuge which is located in the southern portion of Jasper County, just south of the watershed. The refuge encompasses about 11,000 acres and is managed primarily for waterfowl. Recreational activities allowed on the refuge consist primarily of wildlife observation.

The only lake of significant size in the area is Nunna Rock Lake, which is located about two miles north of Ridgeland just east of the watershed. The lake has a surface area of about 80 acres and is open for public fishing on a fee basis.

Other recreation areas within a 50 mile radius of the watershed include Hilton Head Island, Fripp Island, Savannah Beach, Hunting Island State Park, Lake Warren, and Point South, a commercial development. These areas provide a variety of recreational opportunities including camping, picnicking, swimming, fishing, boating, tennis, miniature golf and a driving range.

There are no known pollutants entering the streams in the watershed. Soils in the area have limitations varying from moderate to severe for recreational uses.

Archeological and Historical Resources

One historic site in the watershed is located five miles south of Ridgeland on U.S. Highway 17. Switzerland was the second settlement of the Swiss Colony which came to South Carolina to found a silk and rice culture. The survivors of the original Purrysburg Colony moved to the higher ground of Switzerland, but the Swiss dream of a silk industry did not materialize.

The South Carolina Department of Archives and History has determined that no properties in the watershed are listed in the National Register of Historic Places or are eligible for nomination.

A field survey of the planned project area was made by the Institute of Archeology and Anthropology, University of South Carolina. The following paragraph is the summary from their report, which is attached in its entirety to the letter of comment received from the Institute. (See Appendix C.)

> "No archeological sites were located as a result of this survey. Thus, it does not appear, on the basis of presently available information, that construction of additional drainage channels or enlargement of the presently existing channels on this portion of the Upper New River Watershed will damage or endanger the archeological resources of South Carolina. Should construction reveal the presence of archeological material, the Institute of Archeology and Anthropology should be notified immediately."

Soil, Water and Plant Management Status

The amount of cropland, pastureland, and forest land has remained about constant over the past 10-15 years, although acres devoted to each use interchange. Corn, hay and pastures have always been major crops, while soybeans and fresh vegetables have replaced cotton within the past 10 years. The absence of cotton gins and small acreage allotments which did not warrant mechanical harvesters led to the demise of cotton in the area.

The Beaufort-Jasper Soil and Water Conservation District, in cooperation with the Soil Conservation Service, presently provides technical assistance to landowners in the two counties involved in the watershed under authority of Public Law 46. Adequate conservation measures have been installed on about 50 percent of the open land in the project as a result of this technical assistance and the willingness of landowners to practice good land use.

There are 50 conservation plans and 60 district cooperators of record. About 80 percent of the watershed is covered by agreements and about 60 percent of the planned practices have been applied. About half of the existing plans need revision to bring them in line with present day farming practices and to account for some changes in ownership. Field surveys have been completed to prepare a soil survey publication for the two counties.

The South Carolina State Commission of Forestry, in cooperation with the U.S. Forest Service, through the various federal-state cooperative forestry programs, is providing forest management assistance, forest fire prevention and suppression assistance, distribution of planting stock, and forest pest control assistance to private landowners in the watershed area.

WATER AND RELATED LAND RESOURCE PROBLEMS

Land and Water Management

Practically all of the soils in the watershed are classified as having a wetness hazard. Most areas which have available outlets, have been drained and the soils respond well for agricultural and forest production.

Unfavorable economic conditions on the small farms deter the application of needed conservation measures, since operators are forced to commit their capital resources first to production practices that have a direct bearing on immediate income. This leaves very little capital for investment in land treatment measures that produce long-range benefits rather than immediate returns.

Other land treatment practices such as land grading and leveling cannot be installed until the wetness problem is solved.

Floodwater Damage and Drainage Problems

Problems of flooding and poor drainage are inseparable in this Coastal Plain area. Due to the low range in topography and lack of available outlets, extensive flooding occurs throughout the watershed. Floodwater moves off slowly, causing wet conditions to prevail for extended periods.

The optimum crop planting season in the early spring is broken by short duration, high intensity showers. The absence of needed drainage often leaves the soil too wet for land preparation or planting from rain to rain. If planting of crops is delayed until after the preferred season, root systems and plant growth are not developed sufficiently to take full advantage of the rainfall in the months of July and August.

Flooding combined with poor drainage reduces income to farmers by: (1) delaying spring planting; (2) requiring replanting with its added costs of land preparation, seed, fertilizer and chemicals; (3) damaging growths on mature crops which results in lower yield and poorer quality; (4) limiting grazing time and lowering forage quantity and quality; (5) causing high rate of plant and animal disease; and (6) delaying or preventing harvest.

Long periods of inundation and saturated soil conditions that occur on the nearly level coastal plain soils are also a serious problem to forest landowners. The existing water courses are not adequate to remove excessive surface water and reduce the water table in a period of time suitable for good growth and regeneration of stands, or for ready access for management and protection throughout most of the year.

Very few farms in the watershed have outlets for the needed ditches and tile drains within their boundaries. There is a definite need for group or community type channels to provide flood protection and drainage outlets by crossing farm boundaries, highways, or other obstructions that limit installation on an individual basis.

Soils in the watershed are highly productive when drained and respond well to drainage practices.

The rural residents suffer from flooding of their lawns, driveways, shrubbery and vegetable gardens. The flooding and high water table create health hazards by providing breeding places for mosquitoes and preventing septic tanks from functioning properly.

The average annual damages from floodwater are estimated to be $19,600 to crop and pasture; $36,500 to forest land; $12,300 to roads; and $1,600 to houses. Also, an estimated $12,050 of indirect damages occur annually. Except for the indirect damages and damage to houses, losses incurred from lack of drainage outlets equals the floodwater damage.

Erosion and Sediment Damages

Only minor erosion is occurring within the watershed. Soil losses from sheet and rill erosion are below the tolerable limits of two to four tons per acre. The soils are wet and slopes are generally less than two percent. The small amount of sediment available for transport in the drainage system is deposited in the nearest low area, as runoff velocities are low. Sandy soils are dominant over silts and clays, therefore, only negligible amounts of sediment become suspended in the streams. Annual suspended sediment concentrations in Upper New River during runoff periods are 2.6 mg/l. Minor wind erosion occurs during short dry intervals.

Recreation Problems

The South Carolina Outdoor Recreation Plan[1] shows a need for a district type state park in this area. The South Carolina Department of Parks, Recreation and Tourism and the Soil Conservation Service are currently studying the feasibility of developing a park in conjunction with a lake near the town of Grays, about six miles north of the watershed. This development is proposed as an RC&D measure within the Lowcountry RC&D Project.

The population of Jasper County, according to the 1970 census, is 10,856. The projected 1985 population is 9,182. Forecasts indicate a tremendous increase in travel through the area The South Carolina Highway Department predicts that the average daily traffic volume on Interstate Highway 95 at the South Carolina-Georgia State Line in 1975, will be 19,000 vehicles.

Water quality in the watershed varies widely by seasons and rainfall. During periods of low rainfall, the BOD ranges as high as 16.3 mg/l and the water becomes highly acidic. Turbidity ranges from one to 22 mg/l depending on amount and intensity of rainfall. Frequent fish kills occur along Upper New River as a result of inadequate stream flow and poor water quality.

Although Jasper County contains many thousands of acres of excellent game habitat, only a small percent is available to the general public. Most of the area is controlled by hunting clubs which lease hunting rights from industrial holdings and small farms or own the land.

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[1] SCORP-70, South Carolina Department of Parks, Recreation and Tourism, Columbia, South Carolina, 1970.

Plant and Animal Resource Problems

About 80 percent of the watershed is in forest land and no major changes in land use are occurring. Timber harvest operations usually include a salvage cut for pulp, clearing with a bulldozer and replanting. Although tree cover is lost in these areas for 10 years or more, the clear cut areas become established in native plants which produce browse and seeds, and provide fair to good habitat for doves, quail, rabbits, and non-game open land birds for about five years.

Economic and Social Problems

About 77 percent of the family farms in the watershed have annual sales of less than $5,000. Sixty-two percent of the farms have sales of less than $2,500.

While unemployment in this area is approximately the same as the state average, employment opportunities are very rare. There are only two manufacturing plants in Jasper County and total employment in these is 650. Another 650 are employed in the wholesale, retail, and service sectors. Various government agencies employ 550. Agricultural employment accounts for 400 jobs. Only two counties in South Carolina have a per capita income lower than that of Jasper County, which is $1,522. Approximately 36 percent of the families in Jasper County have incomes below the poverty level. Nine hundred ninety-eight families out of 2,676 families in Jasper County receive food stamps.

Additional jobs are needed within this area that will offer residents an opportunity to increase their income level. Jasper and Beaufort Counties are designated Rural Development Areas under the Public Works and Economic Development Act of 1965 (PL 89-136).

ENVIRONMENTAL IMPACTS

Conservation Land Treatment

The planned land treatment measures will provide safe and timely removal of excess water, increase infiltration rates, maintain and improve productivity of the soil, provide additional food and cover for wildlife, and insure the realization of benefits from proposed structural measures. Acceleration of assistance to landowners and operators in planning and applying conservation practices will result in increased income and more effective use of land, labor, equipment, and capital.

The land treatment measures will significantly improve the conditions and productivity of the forest lands. Good water and forest management, along with continued protection from fire, insects, and diseases will combine to increase natural regeneration, satisfactory stocking and tree growth, and improve the accessibility of the forest land for management. Improved forest management and cropping systems

will cause a slight reduction in erosion rates within the watershed. Present erosion rates are less than one-half ton per acre.

Structural Measures

The structural works of improvement will allow removal of excess surface water from 10,200 acres of forest land and 1,900 acres of cropland and pastureland. The landowners, sponsors, and local planners have projected that within the benefited area, the future land use will be essentially the same as the present. Future land use changes recommended to district cooperators and others by the Soil Conservation Service will be compatible with the soil resource base and the level of protection afforded by the project.

The channel system is designed to remove the two year - 24 hour runoff in one day from existing cropland and pastureland and in five days from existing forest land. This system of channels will not be adequate for more intensive uses.

During the planning of the project an artesian effect was noted in the ground water table. Prolonged pumping tests were made on three dug pits (10-15 feet deep) and water levels observed in two drilled wells located 100 and 200 feet from the pits and no drawdown effect was observed. Since the planned depth of channels averages five feet and wells in the area vary in depth from 30 to more than 400 feet and are located more than 100 feet from the proposed channel, the proposed project is not expected to affect the quantity or quality of the water in the existing wells.

In the lower reach of Canal No. 1, two separate 1,000 foot sections of the channel will be excavated below the required grade. These sections will intersect the ground water table, provide watering areas for wildlife and augment downstream flow during periods of low rainfall. The water provided from these sections will have a higher pH, higher total hardness and less organic stain than the water presently in the stream below the construction area; and thereby improve downstream water quality. Additional pool areas will be created by the sediment traps. These sediment traps will reduce the sediment leaving the project area. It is estimated that 186 tons of sediment are leaving the project area annually at present. During construction, an estimated 310 tons of sediment will reach the traps annually. This will be reduced to 174 tons because of the traps. After construction, an estimated 294 tons of sediment will reach the traps annually. This reduction is the result of increasing channel stability and the land treatment program. Future estimates of sediment leaving the project are 147 tons per year. Average suspended sediment concentrations are expected to be reduced from 2.6 to 2.1 mg/l.

Improved hydraulic conditions of the channels will cause flood stages to increase about 0.6 feet immediately below construction as a result of the runoff from the one percent chance storm. The affected area is in bottom land hardwoods, and the increase in

stages will not induce additional damages.

Noise and dust pollution will increase, and the ambient air quality will be lowered as a result of the burning of debris during the construction period.

Reducing the frequency and extent of damage will help stabilize the local agricultural economy. Reduction of the excess water hazard will allow greater freedom in selecting crop rotations and land use adjustments. Better fertilization and management practices will be possible, resulting in greater yields of higher quality products.

The present and expected yields of crops and pastureland are as follows:

Land Use	Yield Without Project	Yield With Project
Corn	60 bu.	90 bu.
Soybeans	22 bu.	35 bu.
Pastureland	5-6 AUM*	7-9 AUM*

A net increase of $4.00 to $7.00 per acre is expected on the forest land with the planned project. This data was computed by the U.S. Forest Service.

There will be approximately 100 landowners who will benefit from the planned project. About 20 are low to average family farm operations.

The project will give special benefits to average and low income farmers by providing outlets for excess water which are not usually found on their relatively small land holdings. Multiple purpose channels will cross farm boundaries, highways and other obstructions for water removal. General economic conditions in the project area will be improved by making the land more productive on family-size farms.

Annual flood damages to roads, culverts and bridges are presently occurring at some locations within the channel construction area. These damages cause increased repair and maintenance costs and are expected to be reduced approximately 40 percent after project installation. Reduction in road maintenance costs resulting from the multiple purpose channel will permit Jasper County to utilize the money saved to improve the general county road system.

Fire hazard in the forested areas is expected to increase slightly because of increased access resulting from the works of improvement. However, prescribed burning of pine forests for hazard reduction at intervals of three to five years, a standard forest management practice in the area, will reduce the probability, size, and intensity of wild-

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* Animal Unit Months.

fires. Prescribed burning is also desirable for improving vector control, forest land grazing and game habitat.

Removal of excess surface waters in the forest, results in a change in the low-growing types of vegetation. Among the native plants that come into open forest lands in the southeast are many seed producers that are attractive to game species. The addition of this food supply to the natural forest cover will provide more food and cover for deer, rabbits, quail and non-game wildlife.

Fish and Wildlife

The greatest effect of installation of the project is expected to be in improved forest land management. The multiple purpose channels will allow landowners to manage the forests for maximum pulp and timber production. Prescribed burning and mechanical methods to remove much of the dense understory will improve habitat for deer, turkey and other wildlife species which favor open-type forest.

In keeping with modern forest management trends, part of the forest land will probably receive even-aged management. This practice involves clear-cutting by compartments, however, if these are 50 acres or less in size, the effect on the forest land wildlife population will not be significant. Tree cover will be lost on these areas for 10 years or more, but fair to good habitat for doves, quail, rabbits, and non-game openland birds will exist for about five years.

Improved drainage of cropland will allow farmers to apply better management practices and diversify crops. Crop diversity will be favorable to most openland wildlife species.

Exposing the aquifer will create a more dependable source of water for wildlife and benefits to the fishery below the construction area. Test pits dug in the area of the overcuts indicated that there will be a reliable flow into the reaches of New River used by redfin pike. The aquifer was tested for pumping rates from September through December 1973. These tests show that the aquifer is under a static head of six feet during normal moisture periods and that the head decreases to four feet after a relatively long dry period. Water yield during dry periods was approximately one gallon per minute for each 25 square feet of aquifer exposed. The storage capacity of the aquifer to an elevation six feet below channel depth was calculated to be 87 billion gallons. A constant monitoring of the water level in wells located 100 and 200 feet from the test pits, indicated no change in the water levels during a 24 hour pumping period. Tests for total hardness of the water from the pits ranged from six to 20 mg/1, which is considerably better than the present water quality in Upper New River.

Archeological and Historic

The Institute of Archeology and Anthropology, University of South Carolina, has made a study of the area. These investigations indicate that the project will not encroach on any archeological values. The South Carolina Department of Archives and History has determined that no properties in the watershed are listed in the National Register of Historic Places or are eligible for nomination. The historical site of Switzerland will not be affected by the planned project.

The proposed project will not change the existing responsibility of any federal agency under Executive Order 11593, with respect to archeological and historical resources.

Economic and Social

Employment opportunities in the watershed will be increased slightly, but a greater impact upon the underemployed farmers of the area will be realized. They will be able to utilize more production type practices and have a more diversified farm operation, thus having a greater net income and being more economically stable. The general living conditions of residents in the area will be greatly improved. Water which now stands for several days or even weeks in yards can be removed by the channel system. People will use some of the money from their increased income and decreased floodwater damages to improve the general appearance of their homes and homesites. The children will have a better environment in which to play. By removing the water, septic tanks will function more properly making health and sanitary conditions more tolerable. Breeding places for mosquitoes will be reduced by the works of improvement.

With the improvement of the living conditions of the area, out-migration which has been increasing in the area, will be slowed down and immigration will be likely.

Other

There will be approximately 334 acres of land committed to the installation of the planned project. Of this acreage, 329 are presently forested and five acres are open land. For construction, there will be 290 acres cleared. After construction, vegetation, and tree planting, the future use will be 184 acres of forest land and 150 acres of open land. The immediate wildlife habitat loss of 290 acres will be less than one percent of similar habitat in the watershed.

FAVORABLE ENVIRONMENTAL EFFECTS

Floodwater and drainage problems will be reduced on 1,900 acres of cropland and pastureland and 10,200 acres of forest land. Water quality and quantity in Upper New River below the construction area will be improved during dry periods. Health hazards will be reduced through improved septic tank absorption field operation and vector control. About 120 landowners will be directly benefited by the improved drainage and reduced flooding. Increased yields and higher quality products will improve the economic and social conditions of the area.

ADVERSE ENVIRONMENTAL EFFECTS

Installation of the project will require clearing and permanently prevent trees and shrubs from growing on 150 acres. In addition, clearing of 140 acres for spoil disposal will be needed but this will be temporary because this area will be allowed to revert to trees. Improved hydraulic conditions of the channels will cause the flood stages resulting from the one percent chance storm to increase about 0.6 feet immediately below the construction area. Noise and dust pollution will increase and the ambient air quality will be lowered as a result of the burning of debris during the construction period.

ALTERNATIVES

Alternatives considered in addition to the various designs, methods of construction, and objectives include (1) a non-structural measure plan to encourage land use compatible with the present flooding and poor drainage and (2) no project.

A non-structural measure plan would include provisions for public purchase of numerous tracts of land. More than 20 households or families would need to be relocated, some for a considerable distance to decent, safe, and sanitary housing. Land use regulations would be necessary to permit only those uses that would be compatible with existing conditions. Residents not relocated would be denied most of their income from present land use. At present, there is no agency or program to implement such a plan. If no efforts to relieve flooding and drainage problems were made in the Calfpen Bay area, the only use which could be made of the area would be low value wildlife habitat with a few scattered areas of pasture. Although the area would be too wet for cropland, pastureland, or forest land management, it would not constitute a good wetland wildlife habitat. Benefits would be the damages not incurred of about $100,000 annually. The cost

would include land purchase, relocation, present production less future production, and administration which would exceed $200,000 annually.

With no project, the crop and pasture damages will continue, water will continue to be ponded around houses, roads, yards, and the forest land site index or production potential will remain low. The monetary benefits which would be foregone amount to $59,700 annually.

SHORT-TERM VS. LONG-TERM USE OF RESOURCES

The proposed project is compatible with projected future long-term uses of land, water, and natural resources. However, the project was planned to adequately meet the immediate needs of the area. Modification can be made to the project in the future, if greater floodwater protection and more drainage outlets are needed for changed land use.

The project will be effective in conserving land and water resources throughout and beyond its designed life, if the measure is adequately maintained. The proposed project will induce better production practices, thus increasing the productivity of the land to meet the growing demand for food and fiber. The project will also improve the quality of living, both economically and socially, for the present and future generations of the area.

The watershed is located within the Ashley-Combahee-Edisto River Basin. In the basin, there are two other watershed projects that have been planned and structural measures installed. These two projects, along with Upper New River, when approved and installed will encompass approximately 184,000 acres, or 4.2 percent of the area of the basin. The three watershed projects are similar, in that the structural measures in each are multiple purpose channels for flood prevention and drainage. Installation of these projects results in a loss of about 0.4 percent of the total pine and hardwood area within the watersheds; however, total forest land production will increase as a result of the improved drainage.

There are no known conflicts between the Upper New River Watershed plan and any other water resource project in the surrounding area.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Installation of the project will require clearing and permanently prevent trees and shrubs from growing on 150 acres. In addition, clearing of 140 acres for spoil disposal will be needed, but this will be temporary because this area will be allowed to revert to trees. The labor, material, and energy required to install the project is an irretrievable commitment of resources.

CONSULTATION AND REVIEW WITH APPROPRIATE AGENCIES AND OTHERS

General

Local public meetings were held throughout planning to inform all local interests of the project and to enlist public input. News releases were used to help keep the public informed. Planning was coordinated with state and federal agencies.

The Institute of Archeology and Anthropology, University of South Carolina, made a survey of the proposed project area and have determined that no archeological values will be affected. The South Carolina Department of Archives and History has indicated by letter that no historical values will be affected by the proposed work.

The U.S. Fish and Wildlife Service and the South Carolina Wildlife and Marine Resources Department made studies of the watershed. Recommendations received from these agencies were considered in formulating the plan to avoid disturbing areas of concern as indicated in their reconnaissance reports.

Discussion and disposition of each comment on draft environmental statement

The following agencies were asked to comment on the draft environmental impact statement:

Department of the Army - responded
U.S. Department of Commerce - responded
Department of Health, Education and Welfare - responded
U.S. Department of the Interior - responded
Department of Transportation - responded
U.S. Environmental Protection Agency - responded
Federal Power Commission - did not respond
Advisory Council on Historic Preservation - did not respond
Office of Equal Opportunity - USDA - did not respond

South Carolina Division of Administration (State Clearinghouse)
  Wildlife and Marine Resources Department - responded
  Highway Department - responded
  Department of Archives and History - responded
  Department of Health and Environmental Control - responded
  Institute of Archeology and Anthropology - responded
  Land Resources Conservation Commission - responded
  Department of Parks, Recreation and Tourism - responded
  Commission of Forestry - responded
  Department of Agriculture - responded
South Carolina Water Resources Commission (for the Governor) - responded
Lowcountry Regional Planning Council - did not respond

Each issue, problem or objection is summarized and a response given on the following pages. The original letters of comment appear in Appendix C.

Department of the Army

Comment: We have reviewed the work plan and foresee no conflict with any project or current proposal of this Department.

Response: Noted

U.S. Department of Commerce

Comment 1: The draft environmental impact statement is lacking in its analysis of the environmental impact of the proposed project. The major portion of the draft environmental impact statement concentrates on explaining why the area needs the proposed drainage system. Much of the information presented is qualitative, as if obtained by visual observations only. The factual information that is given is presented in an unstructured fashion, making any analysis of the proposed project difficult. No data or even estimates have been presented to indicate how biological productivity of the area will change with development of this project. No mention is made as to the type or amount of equipment needed to excavate the proposed channels.

Response: The structure of the statement conforms to the format as outlined by the Soil Conservation Service Guidelines for preparation of Environmental Impact Statements entered into the Federal Register on June 3, 1974. Impacts which are considered significant were analyzed. Additional quantitative data has been added to the statement in response to other comments. Data indicating change in biological productivity of the affected area has been presented in "Environmental Impacts, Structural Measures" and "Environmental Impacts, Fish and Wildlife". The channel will be excavated using conventional earthmoving equipment such as bulldozers and draglines.

Comment 2: The proposed project will cause increased runoff and hence the possibility of transporting increased amounts of pesticides, herbicides, and fertilizers downstream. We suggest that the draft environmental impact statement discuss the effects of increased drainage on biota located in the lower portions of the New River as well as the cumulative effects of increased drainage from this project and similar projects in the area on living aquatic resources occurring in the coastal wetlands.

Response: Increased drainage resulting from installation of the proposed project is not expected to affect biota in the lower portions of New River. The construction area is more than 30 miles upstream from the New River outlet. See response to comment by the South Carolina Department of Health and Environmental Control regarding the transporting of increased amounts of herbicides, pesticides, and fertilizers downstream.

Comment 3: Numerous geodetic control survey monuments are located in the immediate vicinity of the proposed project area. If there is any planned activity which will disturb or destroy these monuments, the National Ocean Survey (NOS) requires not less than 90 days notification in advance of such activity in order to plan for their relocation. NOS recommends that funding for this project include the cost of any relocation required for NOS monuments.

Response: No geodetic survey monuments will be affected by the proposed structural measures.

Comment 4: Structural Measures, Page 5, section (b). The statement is made that "Measures will be provided at equipment and repair areas to prevent contaminants from reaching streams and ground water." What the measures are and the type of contaminants that may occur are not mentioned.

Response: Possible contaminants consist primarily of petroleum wastes associated with machinery maintenance. Disposal of these contaminants will comply with Public Law 92-500 and regulations of the South Carolina Pollution Control Act.

Comment 5: Economic Resources, Plant and Animal Resources. A complete inventory of the biota present within the watershed is lacking. Information as to rare or infrequent species (such as migratory animals) is absent. It is stated (page 18) that the probability of the occurrence of the bald eagle, osprey and alligator is low because of poor feeding areas and habitat. This statement is not backed up in any factual way (i.e., population counts).

Response: The statement referred to describes the biota present within the area affected by the proposed channel work (Calfpen Bay). As indicated in "Environmental Setting, Plant and Animal Resources", the area of the watershed below Calfpen Bay is recognized as very valuable wildlife habitat which supports a variety of wildlife species. Neither the bald eagle, osprey or alligator has been observed in the Calfpen Bay Area, but since the lower portion of the watershed is used by all three, it is reasonable to assume that they may occasionally occur there.

Comment 6: Data are given for present water quality (BOD, color, turbidity, PH - page 17) which were collected over a ten-year period by the South Carolina Department of Health and Environmental Control. However, no quantitative predictions are given as to how the proposed project will affect the water quality. The comment that the methods used will improve the water is unsupported.

Response: See "Environmental Impacts, Fish and Wildlife".

Comment 7: Environmental Impact, page 28, line 16. The effectiveness of the proposed sediment traps or of channeling beneath the water table are only promised to improve water quality--this is not backed up by any given data. The method of maintenance of these sediment traps (i.e., dredging) is not mentioned.

Response: Similar traps were constructed at the outlets of channel work in the Horse Range Swamp Watershed in Orangeburg County. The South Carolina Department of Health and Environmental Control has monitored the water quality in Horse Range Creek below the traps since construction was completed. This monitoring, which has been conducted over a two year period, indicates that the traps are effectively trapping sediment and preventing downstream turbidity. The planned maintenance of the sediment traps consists of removing the sediment with a dragline as needed. The traps in Horse Range Swamp Watershed have accumulated very little sediment, and indications are that only infrequent maintenance will be needed.

Comment 8: Page 32, line 19. In the draft environmental impact statement itself, there is no factual information substantiating that this project will give a great economic boost to the area. Statements such as "The general living conditions of residents in the area will be greatly improved," are not enough to convince one of the economic gains or overall desirability of this proposal. The impact statement says that 85% of the work force of Jasper County is employed in nonagricultural functions. From this it seems obvious that the proposed project will not incur a major economic benefit to the county. Data are presented on page 10 of the addendum of the work plan concerning economic benefits. Here, too, it seems that the income class needing the most help (less than $3000 a year) receives the least in percentage of benefits.

Response: About 100 families will benefit directly from the proposed structural measures. Twenty of these are low to average income farm families and about 40 are low to average income non-farm families which will be benefited by the removal of floodwater from around their homes.

Comment 9: Alternatives, Page 34, line 13 through page 35, line 16. Only two alternatives were proposed--one of these being the no-action alternative (pages 34-35). Realistically it seems that more alternatives could be proposed and considered. The second alternative of the non-structural measure plan is rejected because of the various reasons given on pages 34-35. The positive sides of this alternative are not given equal weight in this discussion.

Response: There are probably numerous alternatives to any proposal; however, only viable alternatives with possible sponsorship are presented. Since no sponsorship was available for any other alternatives, none were presented. As stated in the discussion of the non-structural alternative, if no efforts are made to relieve flooding and drainage problems in Calfpen Bay, the area would have a very low value for any use.

Department of Health, Education and Welfare

Comment: Based upon the data contained in the draft, it is our opinion that the proposed action will have only a minor impact upon the human environment within the scope of this Department's review. The impact statements have been adequately addressed for our comments.

Response: Noted

U.S. Department of the Interior

General

Comment: Outdoor recreation concerns have been adequately considered in both the work plan and draft environmental statement.

Response: Noted

Watershed Work Plan

Comment 1: The addendum, including the Environmental Quality Plan, does not comply with the "Principles and Standards for Planning Water and Related Land Resources" (Federal Register, Vol. 38, No. 174, September 10, 1973).

Response: According to agreement between the Council on Environmental Quality and the Soil Conservation Service, projects which were formulated by October 1, 1973, do not have to meet the full requirements of the "Principles and Standards". Requirements for these "phase-in" projects were established. Since this project was formulated prior to October 1, 1973, the "phase-in" requirements are applicable and have been met.

Comment 2: Environmental Considerations. Among the favorable environmental effects mentioned is increased streamflow in dry periods. As discussed in the work plan on page 27, the increase is expected to come from two channel segments each 1,000 feet long which will be "excavated deeper" to expose the "underground aquifer". It is doubtful that this exposure would increase flow since the water level in the excavated channel would not be lowered to any significant degree and the ground water table in relation to the channel gradient would not be changed.

Response: Investigations and studies made to predict the effects of the segments mentioned are discussed in the "Investigations and Analysis" section, last paragraph under "Geology", page 41.

Comment 3: Structural Measures. This section should indicate how many acres and what species of trees will be planted on the spoil bank. Elsewhere in the work plan and impact statement there are statements that 140 acres will be allowed to revert to trees. We recommend that a fast mast-producing tree such as runner oak or sawtooth oak be planted in this area.

Response: Recommendation noted.

Environmental Impact Statement

Comment 1: Under Planned Project, page 2, paragraph 4, states that: "Drainage measures will allow establishment of ..." food and cover which will enhance wildlife habitat on 20,000 acres. It is assumed from this statement that the "establishment" of plants will be by natural succession. The final statement should address this point and indicate that 4,400 acres of flood plain hardwood forest and its related wetland wildlife values will be degraded in order to enhance upland wildlife habitat. The meaning of "undesirable trees" should be clarified. The final statement should also describe the improvement cutting process and address what effects it may have on wildlife habitat.

Response: The paragraph cited has been rewritten to include additional information. The word "undesirable" has been changed to "non-commercial". Also, the last paragraph of "Environmental Setting, Plant and Animal Resources", has been rewritten to more clearly describe the 4,400 acres of flood plain.

Comment 2: Under Structural Measures, page 3, paragraph 4, indicates that a wetland habitat condition will be maintained by excavating the channel to expose the underground aquifer. We feel that this claim should be substantiated in the final statement, since there is no data to support it and it appears to be contradictory to the intent of the project.

Response: The third paragraph under "Structural Measures" has been revised.

Comment 3: It is stated that excavation in any canal sections with a bottom width of less than 16 feet will be accomplished from one side (page 3,4). The final statement should indicate the number of miles of Canal No. 1 that can be excavated in this manner, as well as the number of miles to be excavated by some other means.

Response: This information has been added to the fourth paragraph of "Planned Project, Structural Measures".

Comment 4: It is our understanding that an existing Cooperative Forest Management Program provides technical assistance to landowners of this area for forest land treatment measures. We recommend that this program be summarized in the final statement to verify assertions made in this section (Operation and Maintenance) and elsewhere in the statement that state forest management practices will be conducted to benefit wildlife habitat.

Response: Additional information has been added to this section regarding the South Carolina State Commission of Forestry's policy and multiple use management considerations.

Comment 5: The final statement should provide information on the extent of the surveys and a determination of the presence or absence of cultural resources in areas not examined by professional archeologists or historians.

Response: The third paragraph under "Archeological and Historical Resources" has been rewritten.

Comment 6: A summary of the report from the Institute of Archeology and Anthropology, should be included in the final statement. The final statement should also provide information on considerations given to cultural resources within the boundaries of the watershed in achieving project goals. Specifically, the final statement should acknowledge the procedures to be followed under PL 93-291 (Reservoir Salvage Act Amendments) should cultural resources be encountered during construction.

Response: See response to Comment 5 and tenth paragraph of "Planned Project, Structural Measures".

Comment 7: On page 18 it is stated that the value of the project area as wildlife habitat is very low, citing the prevalence of blackbirds as an indicator. We believe that the value of this land for wildlife habitat has not been adequately assessed since bottomland provides a diversity of habitat necessary to sustain both wetland wildlife species and upland species. The final statement should indicate this.

Response: The last paragraph under "Environmental Setting, Plant and Animal Resources" has been revised. The bottomland mentioned is below the area of construction and will not be affected by the project. The statement referred to pertains only to the Calfpen Bay area.

Comment 8: The draft statement fails to recognize other impacts induced by this project that could negate any claims to improvement of downstream water quality. Increased runoff from agricultural lands and septic tanks, as well as reduction of organic detritus from upstream sources, should be addressed as possible impacts detrimental to water quality and fish habitat below the construction area.

Response: The "Environmental Impacts, Structural Measures", has been expanded to clarify the expected future use of the area. Of the 1,900 acres in cropland and pastureland, 1,000 acres are in cropland. This acreage is not expected to increase. Only a few septic tank absorption fields will be as close as 100 feet to the proposed channels. As stated in "Environmental Setting, Plant and Animal Resources", organic detritus contributes to the turbidity and acidity of the stream. It is not anticipated that the proposed project measures will have appreciable effects on the organic detritus source.

Comment 9: As stated in earlier technical comments relating to the preliminary draft statement, a comparative quantification of annual historic flows, and flows to be provided by the project overcutting, should be presented in the final statement. This will document whether a "reliable flow" (page 31) will be provided for fish and wildlife habitat below the construction area.

Response: Information has been added to "Environmental Impacts, Fish and Wildlife", fourth paragraph.

Comment 10: The statement, on page 33, that forest land areas have a low wildlife value and are unproductive because of wet conditions has not been substantiated in the draft statement. Vegetation surveys of the forest lands should be undertaken and wildlife species abundance and type documented for the project area. If the assertion cannot be adequately documented, it should be deleted from the final statement.

Response: The statement has been deleted.

Comment 11: There will be approximately 334 acres of land committed to the installation of the planned project. Installation of the project will require clearing, and permanently prevent trees and shrubs from growing on 150 acres. The remaining 140 acres, comprising cleared spoil disposal areas, has been referred to on page 33, but only by the statement: "The other 140 acres will be revegetated and allowed to revert to trees." The first mention of spoil disposal noted in the draft environmental statement appears on page 34 (line 6). It would therefore be advisable to add the following clause or similar information after the last line on the first page of the Summary Sheet: "... including spoil deposition on 140 acres that are presently forested".

Response: Additional information has been added as suggested to Item V of the Summary Sheet.

Comment 12: It is the responsibility of the Soil Conservation Service to take into account primary and secondary environmental impacts on cultural resources. Land treatment measures which may be the responsibility of the sponsoring local organization rather than the SCS may affect cultural resources. The impact may be either primary or secondary. The responsible Federal Agency should not expend appropriated funds which may contribute to the inadvertent destruction or alteration of cultural resources of local, regional, or national significance (Historic Preservation Act, Section 106, 36 CFR, Part 800, Watershed EIS III.E.(6)).

Response: Noted

Comment 13: The "Adverse Environmental Effects" section should be expanded to include the 9 miles of intermittent streams and 19 miles of ephemeral streams that will be destroyed and replaced by a manmade ditch. Other aspects of this project that could be deleterious to the downstream stream fishery include: increased solar heating of stream water, the alterations of instream food and organic matter, and food entering the stream from upland sources. These aspects should be addressed in the final statement.

Response: Of the nine miles of intermittent streams involved, seven miles have been modified by man within the past 15 years. The remaining two miles of intermittent streams and 19 miles of ephemeral streams (which are drainageways with water only during periods of runoff) have no or practically no defined channel. Any solar heating of stream water resulting from project construction is expected to be at least partially offset by the cooling effects of the water supplied from the underground aquifer. The stream below the construction area supports a warm water fishery. It is not anticipated that instream food or organic matter, or food entering the stream from upland sources will be affected by the project. No change has been made.

Department of Transportation

Comment: The Department of Transportation has reviewed the material submitted. We have no comments to offer nor do we have any objection to this project.

Response: Noted

U.S. Environmental Protection Agency

Comment 1: Consideration should be given to the impact that 28 mies of intermittent and ephemeral stream channelization will have on the main source of the watershed's supply. Channelization could intersect the shallow ground water table and this could result in contamination of the water supply for some users.

Response: An additional statement has been added under "Environmental Impacts, Structural Measures" to provide more information.

Comment 2: We recommend that the final statement outline the precautions to control erosion and water pollution and assure timely removal of sediment from the sediment traps.

Response: A review of the statement indicates that precautions have been outlined. See "Planned Project, Structural Measures", paragraphs 4 and 5; "Operation and Maintenance" paragraph 2; "Water and Related Land Resource Problems, Erosion and Sediment Damage", paragraph 1; and "Environmental Impacts, Structural Measures", paragraph 2.

Comment 3: We believe the statement could be improved by further discussion of the future use of the protected land.

Response: Information has been added to the first paragraph of "Environmental Impacts, Structural Measures".

Comment 4: Finally, it should be stated whether there are implications pursuant to Section 404 of Public Law 92-500.

Response: As indicated under "Planned Project, Structural Measures", installation of project measures will conform with local, state and federal laws as related to air and water quality, health and safety standards, necessary permits, etc. The sponsors are aware that prior to construction all applicable permits including Section 404 of Public Law 92-500 must be obtained.

South Carolina Division of Administration

This agency serves as a clearinghouse for state agencies. In this capacity, they received the following responses:

Wildlife and Marine Resources Department

Comment: We feel that this project will improve habitat for some wildlife species, including deer and quail, because of the drainage of pine woodland and agricultural areas and the timber management practices that are proposed. Suitable habitat is very limited in the project area for other wildlife species including wild turkey, wood duck and alligator. Very low populations of these species exist in the project area.

Based on field investigations of the proposed area and our review of the Environmental Statement, this office does not offer an objection.

Response: Noted

Highway Department

Comment: There are numerous roads that will possibly be adjusted at a later date.

Response: Noted

Department of Archives and History

Comment: Areas designated for land treatment measures, as well as those areas designated for structural measures should be surveyed for archeological sites that could be destroyed by land grading, leveling, planting, etc.

Response: The only areas not now in cultivation which might be affected by the activities mentioned would be small areas of 1/8 acre to two acres scattered throughout the watershed which will be planted for wildlife food. These areas will be established by individual landowners and the exact locations are not known. Landowners will be encouraged to report any artifacts or other items of archeological or historical significance uncovered.

Department of Health and Environmental Control

Comment: After completion of this project more intense agricultural and silvicultural activities will begin. These activities will result in an increased application of fertilizers, pesticides and fungicides and run-off will carry these chemicals to the New River drainage area resulting in increased levels of harmful chemicals in the aquatic ecosystem. If possible, additional measures to trap these chemicals before they enter the New River should be adopted. Such measures as nutrient catch basins in addition to the two sediment basins would be beneficial. This Agency reserves the right to make additional comments on this project at a later date.

Response: The possible increase in concentrations of fertilizers and pesticides in Upper New River Watershed was discussed with personnel of the Department of Health and Environmental Control. It was pointed out that only 6.5 percent of the drainage area above works of improvement is agricultural cropland and the remaining is forest land and pasture. It was also pointed out that the local timber interests use very little fertilizers or pesticides.

Institute of Archeology and Anthropology

Comment: See attached environmental impact statement (*Research Manuscript Series*, No. 70, Institute of Archeology and Anthropology, University of South Carolina).

Project consistent with agency plans and policies.

Response: Noted

Land Resources Conservation Commission

Comment: Project consistent with agency plans and policies. Plan should provide for effective water management practices that would benefit the entire watershed. Some of the proposed canals seem to be segmented. Location of some canals appear to be placed with little consideration being given to natural drainageways.

Response: See follow-up letter from Land Resources Conservation Commission dated May 30, 1975.

Department of Parks, Recreation and Tourism

Comment: Project consistent with agency plans and policies.

Response: Noted

Commission of Forestry

Comment: Project consistent with agency plans and policies.

Response: Noted

Department of Agriculture

Comment: Project consistent with agency plans and policies.

Response: Noted

South Carolina Water Resources Commission

Comment: This agency has cooperated with the Soil Conservation Service previously in the preparation of this plan. We offer no additional comments at this time.

Response: Noted

APPROVED: G. E. Huey DATE 9-12-75

G. E. Huey, State Conservationist
SOUTH CAROLINA

LIST OF APPENDICES

APPENDIX A - COMPARISON OF BENEFITS AND COSTS FOR STRUCTURAL MEASURES

Upper New River Watershed, South Carolina

(Dollars)

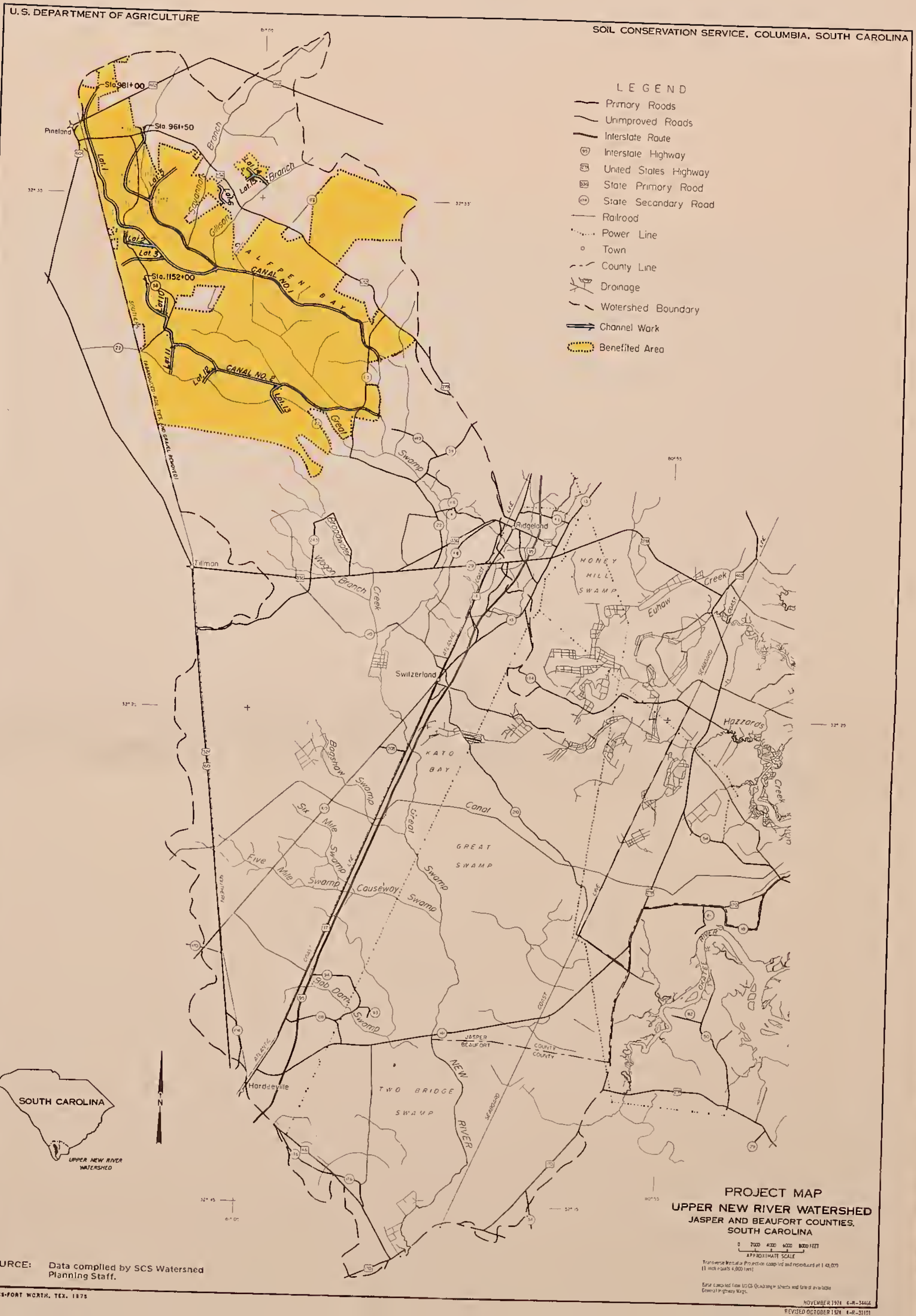
Evaluation Unit	AVERAGE ANNUAL BENEFITS 1/						Average Annual Cost 2/	Benefit Cost Ratio
	Damage Reduction	Drainage	More Intensive Land Use	Secondary	Redevelopment	Total		
Canal No. 1 and Laterals	25,550	21,650	2,000	6,400	6,400	62,000	38,900	1.6 to 1
Canal No. 2 and Laterals	23,400	18,500	2,800	7,600	2,500	54,800	15,150	3.6 to 1
Project Administration							3,050	
GRAND TOTAL	48,950	40,150	4,800	14,000	8,900	116,800	57,100	2.0 to 1

1/ Price base - current normalized for crop and pasture; current prices for all other.
2/ Price base - 1974, amortized at 5 7/8 percent interest for 40 years.

December 1974

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE, COLUMBIA, SOUTH CAROLINA



PROJECT MAP

UPPER NEW RIVER WATERSHED

JASPER AND BEAUFORT COUNTIES, SOUTH CAROLINA

0 2000 4000 6000 8000 FEET
APPROXIMATE SCALE

Transverse Mercator Projection compiled and reproduced at 1:48,000 (1 inch equals 4,000 feet)

Base compiled from USGS Quadrangle sheets and latest available General Highway Maps.

SOURCE: Data compiled by SCS Watershed Planning Staff.

NOVEMBER 1974 4-R-34464
REVISED OCTOBER 1974 4-R-31101

USDA-SCS-FORT WORTH, TEX. 1975

APPENDIX C - LETTERS OF COMMENT RECEIVED ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Department of the Army
U.S. Department of Commerce
Department of Health, Education and Welfare
U.S. Department of the Interior
Department of Transportation
U.S. Environmental Protection Agency
South Carolina Division of Administration (State Clearinghouse)
South Carolina Water Resources Commission (for the Governor)

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, D.C. 20310

Deputy Administrator for
Water Resources

6/12 Klingelhofer

~~Action~~

9 JUN 1975

Control No. 00684
06 –
Referred to: SCS
Date:
JUN 12 1975
B

Honorable Robert W. Long
Assistant Secretary of Agriculture
Washington, D. C. 20250

Dear Mr. Long:

In compliance with the provisions of Section 5 of Public Law 566, 83d Congress, the State Conservationist of South Carolina by letter of 31 March 1975 requested the views of the Chief of Engineers on the work plan and draft environmental statement for the Upper New River Watershed, South Carolina.

We have reviewed the work plan and foresee no conflict with any project or current proposal of this Department. The draft environmental impact statement satisfies the requirements of Public Law 91-190, 91st Congress, insofar as this Department is concerned.

Sincerely,

Charles R. Ford

Charles R. Ford
Deputy Assistant Secretary of the Army
(Civil Works)

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230

June 30, 1975

Mr. G.E. Huey
State Conservationist
U.S. Department of Agriculture
Soil Conservation Service
901 Sumter Street
Columbia, South Carolina 29201

Dear Mr. Huey:

The draft environmental impact statement for "Upper New River Watershed Project, Beaufort and Jasper Counties, South Carolina," which accompanied your letter of March 31, 1975, has been received by the Department of Commerce for review and comment.

The statement has been reviewed and the following comments are offered for your consideration.

General Comments

The draft environmental impact statement is lacking in its analysis of the environmental impact of the proposed project. The major portion of the draft environmental impact statement concentrates on explaining why the area needs the proposed drainage system. Much of the information presented is qualitative, as if obtained by visual observations only. The factual information that is given is presented in an unstructured fashion, making any analysis of the proposed project difficult. No data or even estimates have been presented to indicate how biological productivity of the area will change with development of this project. No mention is made as to the type or amount of equipment needed to excavate the propose channels.

The proposed project will cause increased runoff and hence the possibility of transporting increased amounts of pesticides, herbicides, and fertilizers downstream. We suggest that the draft environmental impact statement discuss the effects of increased drainage on biota located in the lower portions of the

New River as well as the cumulative effects of increased drainage from this project and similar projects in the area on living aquatic resources occurring in the coastal wetlands.

Numerous geodetic control survey monuments are located in the immediate vicinity of the proposed project area. If there is any planned activity which will disturb or destroy these monuments, the National Ocean Survey (NOS) requires not less than 90 days notification in advance of such activity in order to plan for their relocation. NOS recommends that funding for this project includes the cost of any relocation required for NOS monuments.

Structural Measures

Page 5, section (b). The statement is made that "Measures will be provided at equipment and repair areas to prevent contaminants from reaching streams and ground water." What the measures are and the type of contaminants that may occur are not mentioned.

Economic Resources, Plant and Animal Resources

Page 15, line 5 through page 19, line 4. A complete inventory of the biota present within the watershed is lacking. Some plants (mainly trees) and animals are mentioned, but information as to rare or infrequent species (such as migratory animals) is absent. It is stated (page 18) that the probability of the occurrence of the bald eagle, osprey and alligator is low because of poor feeding areas and habitat. This statement is not backed up in any factual way (i.e., population counts).

Data are given for present water quality (BOD, color, turbidity, pH - page 17) which were collected over a ten-year period by the South Carolina Department of Health and Environmental Control. However, no quantitative predictions are given as to how the proposed project will affect the water quality. The comment that the methods used will improve the water is unsupported.

Environmental Impact

Page 28, line 16. The effectiveness of the proposed sediment traps or of channeling beneath the water table are only promised to improve water quality--this is not backed up by any given data. The method of maintenance of these sediment traps (i.e., dredging) is not mentioned.

Page 32, line 19. In the draft environmental impact statement itself, there is no factual information substantiating that this project will give a great economic boost to the area. Statements such as "The general living conditions of residents in the area will be greatly improved," are not enough to convince one of the economic gains or overall desirability of this proposal. The impact statements says that 85% of the work force of Jasper County is employed in nonagricultural functions. From this it seems obvious that the proposed project will not incur a major economic benefit to the county. Data are presented on page 10 of the addendum of the work plan concerning economic benefits. Here, too, it seems that the income class needing the most help (less than $3000 a year) receives the least in percentage of benefits.

Alternatives

Page 34, line 13 through page 35, line 16. Only two alternatives were proposed--one of these being the no-action alternative (pages 34-35). Realistically it seems that more alternatives couldbe proposed and considered. The second alternative of the non-structural measure plan is rejected because of the various reasons given on pages 34-35. The positive sides of this alternative are not given equal weight in this discussion.

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving four copies of the final statement.

Sincerely,

Sidney R Galler

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGION IV
50 7TH STREET N.E
ATLANTA GEORGIA 30323

August 1, 1975

OFFICE OF THE
REGIONAL DIRECTOR

HEW 517-4-75

Mr. G.E. Huey
State Conservationist
Soil Conservation Service
Department of Agriculture
901 Sumter Street
Columbia, South Carolina 29201

Subject: Upper New River Watershed, South Carolina

Dear Mr. Huey:

We inadvertently omitted the above subject matter on a letter dated May 23, 1975.

Please accept our apology for this error.

Sincerely yours,

Philip P. Sayre
Regional Environmental Officer
DHEW - Region IV

DEPARTMENT OF HEALTH EDUCATION AND WELFARE
REGION IV
50 7TH STREET N.E
ATLANTA GEORGIA [illegible]

OFFICE OF THE
REGIONAL DIRECTOR

May 23, 1975

Mr. G.E. Huey
State Conservationist
Soil Conservation Service
Department of Agriculture
901 Sumter Street
Columbia, South Carolina 29201

RE: HEW 517-4/75

Dear Mr. Huey:

We have reviewed the subject draft Environmental Impact Statement. Based upon the data contained in the draft, it is our opinion that the proposed action will have only a minor impact upon the human environment within the scope of this Department's review. The impact statements have been adequately addressed for our comments.

We appreciate the opportunity to review this impact statement.

Sincerely yours,

Philip P. Sayre
Regional Environmental Officer
DHEW - Region IV

cc:
C. Custard (control slip)
W. Muir (two copies)

United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

PEP ER-75/945

JUN 23 1975

Dear Mr. Huey:

Thank you for your letter of March 31, 1975, requesting our review and comments on the watershed work plan and draft environmental statement for the Upper New River Watershed, Bèaufort and Jasper Counties, South Carolina.

Our comments are presented first on the watershed work plan and then on the draft environmental statement, according to the format of the document or according to subject.

General

Outdoor recreation concerns have been adequately considered in both the work plan and draft environmental statement.

The draft statement and work plan do not accurately address the potential project impacts on fish and wildlife resources. A specific project objective is to preserve and enhance fish and wildlife resources. We do not feel that enough data is provided to support this as a project objective. Specific points will be addressed under the sections on the watershed work plan and environmental statement.

Watershed Work Plan

The draft work plan is almost identical in content to the draft environmental statement and is deficient for many of the same reasons as the draft statement. Comments will first be addressed to the Addendum and then to the work plan itself.

Addendum

The addendum to the work plan is presented for compliance with the "Principles and Standards for Planning Water and Related Land Resources" (*Federal Register*, Vol. 38, No. 174, September 10, 1973). This new Federal policy provides for the consideration of two coequal planning objectives, national economic development and environmental quality.

The policy indicates that the components of these objectives that are significantly related to the use and management of planning area resources will be defined by local, State, regional, and Federal groups at the outset and throughout the planning process.

The principles and standards require that alternative plans be formulated upon these specified components and that at least one alternative plan emphasize contributions to the environmental quality objective (page 15). The principles and standards further indicate that the environmental quality objective should make optimum contribution to the specified environmental quality components and also include national economic development components that are compatible with, or do not significantly diminish from, contributions to the environmental quality objective. Such a plan, formulated with a view to satisfying one of the planning objectives (i.e., environmental quality), would aid in visualizing tradeoffs associated with a recommended multi-objective plan.

The Abbreviated Environmental Quality Plan for the Upper New River Watershed has been reviewed and appears to be an attempt to justify certain aspects of the recommended plan. Consequently, several important environmental quality needs have been overlooked while less relevant considerations have been overemphasized.

The shortcomings of the Abbreviated Environmental Quality Plan are exemplified by the heavily weighted component needs for agricultural interests as they relate to needs for flood control and drainage. For example, the plan describes the component needs for areas of natural beauty as: "providing. . .drainage" and "establishing more desirable species of vegetation" (page 13). Instead of flood control and drainage as component needs in the environmental quality plan, land treatment and management for the establishment, preservation and/or conservation of natural ecosystems is the intent of the environmental quality objective and should be considered.

Moreover, it is apparent that little input has been solicited from any other State or Federal agencies, public sectors, or private conservation organizations. The principles and standards state that a broad spectrum of public groups and interests must be considered and consulted in the identification of components for environmental quality objectives (page 14).

Environmental quality, as defined in the principles and standards, specifically states that explicit recognition should be given to the desirability of diverting a portion of the Nation's resources from the production of market-oriented goods and services to the accomplishment of environmental objectives (page 33). Environmental quality objectives are enhanced by management, conservation, preservation, creation, restoration, or improvement of natural ecological systems. These objectives are not enhanced by the production of market-oriented agricultural goods or the destruction of wildlife habitat.

In summary, the Abbreviated Environmental Quality Plan, in its present form, does not appear to comply with the intent of the principles and standards. Consultation with local, State, and Federal conservation agencies and other concerned individuals and groups could lead to the development of a comprehensive list of component needs upon which to formulate a valid environmental quality plan. We suggest that the above considerations be incorporated into the Environmental Quality Plan and the final environmental statement.

Environmental Considerations

Among the favorable environmental effects mentioned is increased streamflow in dry periods. As discussed in the work plan on page 27, the increase is expected to come from two channel segments each 1,000 feet long which will be "excavated deeper" to expose the "underground aquifer." It is doubtful that this exposure would increase flow since the water level in the excavated channel would not be lowered to any significant degree and the ground water table in relation to the channel gradient would not be changed.

Structural Measures

This section should indicate how many acres and what species of trees will be planted on the spoil bank. Elsewhere in the work plan and impact statement there are statements that 140 acres will be allowed to revert to trees. We recommend that a fast mast-producing tree such as runner oak or sawtooth oak be planted in this area.

Draft Environmental Statement

Planned Project

Page 2, paragraph 4, states that: "Drainage measures will allow establishment of . . ." food and cover which will enhance wildlife habitat on 20,000 acres. It is assumed from this statement that the "establishment" of plants will be by natural succession. If this is the case, and it is accomplished along with sound forest wildlife management practices such as prescribed burning and even-age timber management, it will enhance only upland wildlife species, at best. The final statement should address this point and indicate that 4,400 acres of flood-plain hardwood forest and its related wetland wildlife values will be degraded in order to enhance upland wildlife habitat.

The same section also states that improvement cutting will remove undesirable trees while considering wildlife, watershed, and other environmental values in existing hardwood and softwood stands. The meaning of "undesirable trees" should be clarified. The final statement should also describe the improvement cutting process and address what effects it may have on wildlife habitat.

Structural Measures

Page 3, paragraph 4, indicates that a wetland habitat condition will be maintained by excavating the channel to expose the underground aquifer. We feel that this claim should be substantiated in the final statement, since there is no data to support it and it appears to be contradictory to the intent of the project.

It is stated that excavation in any canal sections with a bottom width of less than 16 feet will be accomplished from one side (page 3, 4). Since the impacts on fish and wildlife reproduction and habitat are minimized when the spoil is shaped to one side only, this practice is preferable to shaping the spoil on both sides of the channel. The final statement should indicate the number of miles of Canal No. 1 that can be excavated in this manner, as well as the number of miles to be excavated by some other means.

Operation and Maintenance

It is our understanding that an existing Cooperative Forest Management Program provides technical assistance to landowners of this area for forest land treatment measures. We recommend that this program be summarized in the final statement to verify assertions made in this section and elsewhere in the statement that State forest management practices will be conducted to benefit wildlife habitat.

Environmental Setting

We are pleased to note that the Institute of Archeology and Anthropology, University of South Carolina, has performed field surveys for cultural resources. The final statement should provide information on the extent of the surveys and a determination of the presence or absence of cultural resources in areas not examined by professional archeologists or historians.

A summary of the report should be included in the final statement. The final statement should also provide information on considerations given to cultural resources within the boundaries of the watershed in achieving project goals. Specifically, the final statement should acknowledge the procedures to be followed under PL 93-291 (Reservoir Salvage Act Amendments) should cultural resources be encountered during construction.

Plant and Animal Resources

On page 18 it is stated that the value of the project area as wildlife habitat is very low, citing the prevalence of blackbirds as an indicator. We believe that the value of this land for wildlife habitat has not been

adequately assessed since bottomland provides a diversity of habitat necessary to sustain both wetland wildlife species and upland species. The final statement should indicate this.

Environmental Impacts

On page 28, the draft statement fails to recognize other impacts induced by this project that could negate any claims to improvement of downstream water quality. Increased runoff from agricultural lands and septic tanks, as well as reduction of organic detritus from upstream sources, should be addressed as possible impacts detrimental to water quality and fish habitat below the construction area.

As stated in earlier technical comments relating to the preliminary draft statement, a comparative quantification of annual historic flows, and flows to be provided by the project overcutting, should be presented in the final statement. This will document whether a "reliable flow" (page 31) will be provided for fish and wildlife habitat below the construction area.

The statement, on page 33, that forest land areas have a low wildlife value and are unproductive because of wet conditions has not been substantiated in the draft statement. Vegetation surveys of the forest lands should be undertaken and wildlife species abundance and type documented for the project area. If the assertion cannot be adequately documented, it should be deleted from the final statement.

There will be approximately 334 acres of land committed to the installation of the planned project. Installation of the project will require clearing, and permanently prevent trees and shrubs from growing on 150 acres. The remaining 140 acres, comprising cleared spoil disposal areas, has been referred to on page 33, but only by the statement: "The other 140 acres will be revegetated and allowed to revert to trees." The first mention of spoil disposal noted in the draft environmental statement appears on page 34 (line 6). It would therefore be advisable to add the following clause or similar information after the last line on the first page of the Summary Sheet: "...including spoil deposition on 140 acres that are presently forested."

It is the responsibility of the Soil Conservation Service to take into account primary and secondary environmental impacts on cultural resources. Land treatment measures which may be the responsibility of the sponsoring local organization rather than the SCS may affect cultural resources. The impact may be either primary or secondary. The responsible Federal Agency should not expend appropriated funds which may contribute to the inadvertent destruction or alteration of cultural resources of local, regional, or national significance (Historic Preservation Act, Section 106, 36 CFR, Part 800, Watershed EIS III.E.(6)).

Adverse Environmental Effects

This section should be expanded to include the 9 miles of intermittent streams and 19 miles of ephemeral streams that will be destroyed and replaced by a manmade ditch. Other aspects of this project that could be deleterious to the downstream stream fishery include: increased solar heating of stream water, the alterations of instream food and organic matter, and food entering the stream from upland sources. These aspects should be addressed in the final statement.

We hope these comments will be helpful to you in the preparation of the final documents.

Sincerely yours,

Stanley D Doremus

Deputy Assistant Secretary of the Interior

Mr. G. E. Huey
State Conservationist
Soil Conservation Service
Department of Agriculture
901 Sumter Street
Columbia, South Carolina 29201

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

MAILING ADDRESS:
U.S. COAST GUARD (G-WS/73)
400 SEVENTH STREET SW.
WASHINGTON, D.C. 20590
PHONE: (202) 426-2262

JUN 5 1975

Mr. G. E. Huey
State Conservationist
Soil Conservation Service
901 Sumter Street
Columbia, South Carolina 29201

Dear Mr. Huey:

This is in response to your letter of 31 March 1975 addressed to the Commandant, Coast Guard concerning a draft environmental impact statement for the Upper New River Watershed, Beaufort and Jasper Counties, South Carolina.

The Department of Transportation has reviewed the material submitted. We have no comments to offer nor do we have any objection to this project.

The opportunity to review this draft statement is appreciated.

Sincerely,

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

1421 PEACHTREE ST., N. E.
ATLANTA, GEORGIA 30309

July 29, 1975

Mr. G. E. Huey
State Conservationist
U. S. Department of Agriculture
Soil Conservation Service
One Greystone West, 240 Stoneridge Drive
Columbia, South Carolina 29210

Dear Mr. Huey:

We have reviewed the proposed changes and response to our comments on the Draft Environmental Impact Statement for the Upper New River Watershed located in Beaufort and Jasper Counties, South Carolina. Our questions and comments have been adequately covered.

Thank you for the opportunity to review these changes.

Sincerely,

David R. Hopkins
Chief, EIS Branch

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

1421 PEACHTREE ST., N. E.
ATLANTA, GEORGIA 30309

June 12, 1975

Mr. C. E. Huey
State Conservationist
U.S. Soil Conservation Service
901 Sumter Street
Columbia, SC 29201

Dear Mr. Huey:

We have reviewed the Draft Environmental Impact Statement for Upper New River Watershed in Beaufort and Jasper Counties, South Carolina and agree with the objectives of the project. We find, however, that several areas of concern need additional information.

For one, consideration should be given to the impact that 28 miles of intermittent and ephemeral stream channelization will have on the main source of the watershed's supply. It is noted that groundwater is considered the main source; therefore, it is reasonable to think that channelization could at some point intersect the shallow groundwater table. This could result in contamination of the water supply for some users. We recommend that the final statement outline the precautions to control erosion and water pollution throughout the life of the project. We further recommend continuous monitoring of all sediment traps so as to assure timely removal of sediment.

We believe the Statement could be improved by further discussion of the future use of the protected land. For example, the Statement stresses improved farm conditions after the project is completed, which is desirable. However, it is stated (page 29) that only about "20 (of the total 100 landowners who will benefit) are low to average family farm operations." We also note that 79 percent of the families in the watershed are classed as rural non-farm and only 11 percent of the county work force is agricultural.

Finally, it should be stated whether there are implications pursuant to Section 404 of Public Law 92-500. We must point out that if the project is to proceed, appropriate Federal permits may be needed pursuant to the Federal Water Pollution Control Act Amendments of 1972. The Upper New River Watershed contains "waters of the United States into which the discharge of any pollutant by any person shall be unlawful" under Section 301 (a) of the FWPCA. The violation of Section 301 (a) will occur unless a Federal permit is obtained for the discharge of pullutants into the main streams. Any discharge of dredged material or fill material into the wetlands that fills or blocks bypassed portions of the river's natural channel may require a Section 404 permit from the U.S. Army Corps of Engineers. Discharge of pollutants other than dredge and fill material (such as from sanitation facilities for construction workers or for park accommodations) into the Upper New River may require Section 402 (NPDES) permits from EPA.

Utmost care should be taken to prevent spoil, etc., deposited on stream banks from washing or falling back into the stream since it may result in violation of Federal laws.

In light of our review in accordance with procedures, we have assigned a rating of ER- (environmental reservations) to the project and 2 (insufficient information) to the Impact Statement.

Please furnish us with five copies of the final environmental impact statement when it is available, and if we can be of further assistance in any way, please let us know.

Sincerely,

Jack E. Ravan

Jack E. Ravan
Regional Administrator

State of South Carolina

Office of the Governor

JAMES B. EDWARDS
GOVERNOR

DIVISION OF ADMINISTRAT
Edgar A. Brown Building
Columbia, South Carolina 29

May 20, 1975

Mr. G. E. Huey
State Conservationist
Soil Conservation Service
United States Department of Agriculture
240 Stoneridge Drive
Columbia, South Carolina 29210

Re: Upper New River Watershed,
Beaufort and Jasper Counties

Dear Mr. Huey:

The Draft Environmental Statement and Watershed Work Plan for the Upper New River Watershed in Beaufort and Jasper Counties, South Carolina, has been reviewed in accordance with the procedures of OMB Circular A-95. Attached for your information are the comments of the Wildlife and Marine Resources Department, the Highway Department, the Department of Archives & History, the Department of Health and Environmental Control, the State Archeologist, the State Land Resources Conservation Commission, the Department of Parks, Recreation, and Tourism, the Forestry Commission, and the Department of Agriculture.

Thank you for the opportunity to review the Statement and Work Plan. If I can be of any further assistance to you, please let me know.

Sincerely,

Elmer C. Whitten Jr.

Enclosures (9)

South Carolina
Project Notification & Review System

STATE APPLICATION IDENTIFIER

Clearinghouse Use Only
CONTROL NUMBER

DIST.	NO.	FY
10	2002	5

SUSPENSE DATE
4/24

PROJECT NOTIFICATION REFERRAL

TO: Wildlife and Marine Resources
Post Office Box 167
Columbia, SC 29202

RECEIVED
APR-3 1975
S. C. WILDLIFE & MARINE RESOURCES DEPARTMENT

he attached project notification is being referred to your agency in ccordance with Office of Management and Budget Circular A-95. This stem coordinates the review of proposed Federal or federally assisted development program nd projects. Please provide comments below, relating the proposed project to the plans, licies, and programs of your agency. All comments will be reviewed and compiled by the tate Clearinghouse. Any questions may be directed to this office by phone at 758-2944. lease return this form prior to the above suspense date to:

tate Clearinghouse
ivision of Administration
05 Pendleton Street
lumbia, South Carolina 29201

Signature Elmer C. Whitten Jr.

Name Elmer C. Whitten, Jr.

RESULTS OF AGENCY REVIEW

RECEIVED
MAY 09 1975
DIVISION OF ADMINISTRATION

☐ PROJECT CONSISTENT WITH AGENCY PLANS AND POLICIES

☐ AGENCY REQUESTS CONFERENCE TO DISCUSS COMMENTS

☒ AGENCY COMMENTS ON CONTEMPLATED APPLICATION AS FOLLOWS:

Personnel of the S. C. Wildlife and Marine Resources Department have reviewed the Environmental Statement prepared for this project by the Soil Conservation Service.

We feel that this project will improve habitat for some wildlife species, including deer and quail, because of the drainage of pine woodland and agricultural areas and the timber management practices that are proposed. Suitable habitat is very limited in the project area for other wildlife species including wild turkey, wood duck and alligator. Very low populations of these species exist in the project area.

Based on field investigations of the proposed area and our review of the Environmental Statement, this office does not offer an objection.

(Use separate continuation sheets if necessary)

FOR THE REVIEWING AGENCY
SIGNATURE: DATE: May 8, 1975

TITLE: EXECUTIVE DIRECTOR PHONE: 758-6536

South Carolina
Project Notification & Review System

PROJECT NOTIFICATION REFERRAL

STATE APPLICATION IDENTIFIER

Clearinghouse Use Only
CONTROL NUMBER

DIST.	NO.	FY
10	2002	5

SUSPENSE DATE 4/24

Mr. Charles Moorefield
SCHD

attached project notification is being referred to your agency in ordance with Office of Management and Budget Circular A-95. This tem coordinates the review of proposed Federal or federally assisted development programs projects. Please provide comments below, relating the proposed project to the plans, icies, and programs of your agency. All comments will be reviewed and compiled by the te Clearinghouse. Any questions may be directed to this office by phone at 758-2946. ase return this form prior to the above suspense date to:

te Clearinghouse
ision of Administration
5 Pendleton Street
umbia, South Carolina 29201

Signature Elmer C. Whitten Jr.
Name Elmer C. Whitten, Jr.

RESULTS OF AGENCY REVIEW

MAY 5 1975

☐ PROJECT CONSISTENT WITH AGENCY PLANS AND POLICIES

☐ AGENCY REQUESTS CONFERENCE TO DISCUSS COMMENTS

☒ AGENCY COMMENTS ON CONTEMPLATED APPLICATION AS FOLLOWS:

There are numerous roads that will possibily be adjusted at a later date.

(Use separate continuation sheets if necessary)

FOR THE REVIEWING AGENCY:
SIGNATURE:
DATE: May 5, 1975
TITLE: Program Coordinator
PHONE: 758-23[illegible]6

South Carolina
Project Notification & Review System

STATE APPLICATION IDENTIFIER

Clearinghouse Use Only
CONTROL NUMBER

DIST.	NO.	FY
10	20025	5

SUSPENSE DATE 4/24

PROJECT NOTIFICATION REFERRAL

TO: Dr. Charles Lee
Dept of Archives & History
Post Office Box 11669
Columbia, SC 29211

RECEIVED
APR 0 3 1975
S. C. DEPARTMENT OF
ARCHIVES & HISTORY

he attached project notification is being referred to your agency in ccordance with Office of Management and Budget Circular A-95. This ystem coordinates the review of proposed Federal or federally assisted development programs nd projects. Please provide comments below, relating the proposed project to the plans, olicies, and programs of your agency. All comments will be reviewed and compiled by the tate Clearinghouse. Any questions may be directed to this office by phone at 758-2946. lease return this form prior to the above suspense date to:

tate Clearinghouse
ivision of Administration
205 Pendleton Street
olumbia, South Carolina 29201

Signature Elmer C. Whitten
Name Elmer C. Whitten, Jr.

RESULTS OF AGENCY REVIEW

APR 28 1975
DIVISION OF
ADMINISTRATION

☐ PROJECT CONSISTENT WITH AGENCY PLANS AND POLICIES

☐ AGENCY REQUESTS CONFERENCE TO DISCUSS COMMENTS

☑ AGENCY COMMENTS ON CONTEMPLATED APPLICATION AS FOLLOWS:

Areas designated for land treatment measures, as well
those areas designated for structural measures should be
urveyed for archeological sites that could be destroyed by
d grading, leveling, planting, etc. We have already checked the
a for historical structures and sites, and found that
e would be affected.

(Use separate continuation sheets if necessary)

FOR THE REVIEWING AGENCY
SIGNATURE: Charles E. Lee DATE: 4/23/75

TITLE: Director, State Historic PHONE: 758-5816
Preservation

South Carolina
Project Notification & Review System

PROJECT NOTIFICATION REFERRAL

STATE APPLICATION IDENTIFIER

Clearinghouse Use Only
CONTROL NUMBER

DIST.	NO.	FY
10	2002	05

SUSPENSE DATE

): Mr. S. J. Ulmer
Dept of HEnC
2600 Bull Street
Columbia, SC 29201

e attached project notification is being referred to your agency in
cordance with Office of Management and Budget Circular A-95. This
stem coordinates the review of proposed Federal or federally assisted development programs
d projects. Please provide comments below, relating the proposed project to the plans,
licies, and programs of your agency. All comments will be reviewed and compiled by the
ate Clearinghouse. Any questions may be directed to this office by phone at 758-2944.
lease return this form prior to the above suspense date to:

ate Clearinghouse
ivision of Administration
05 Pendleton Street
lumbia, South Carolina 29201

Signature Elmer C. Whitten Jr

Name Elmer C. Whitten, Jr.

RESULTS OF AGENCY REVIEW

☐ PROJECT CONSISTENT WITH AGENCY PLANS AND POLICIES

☐ AGENCY REQUESTS CONFERENCE TO DISCUSS COMMENTS

☒ AGENCY COMMENTS ON CONTEMPLATED APPLICATION AS FOLLOWS:

After completion of this project more intense agricultural and silvicultural
ctivites will begin. These activities will result in an increased application of
ertilizers, pesticides and fungicides and run-off will carry these chemicals to the New
ver drainage area resulting in increased levels of harmful chemicals in the aquatic
cosystem. If possible, additional measures to trap these chemicals before they enter
e New River should be adopted. Such measures as nutrient catch basins in addition to
e two sediment basins would be beneficial. This Agency reserves the right to make
ditional comments on this project at a later date.

W. E. Lineback

(Use separate continuation sheets if necessary)

FOR THE REVIEWING AGENCY:
SIGNATURE: DATE: 4-23-75

TITLE: Director, OCHP PHONE: 758-5537

South Carolina
Project Notification & Review System

STATE APPLICATION
IDENTIFIER

Clearinghouse
Use Only
CONTROL NUMBER

DIST.	NO.	FY
10	2002	5

SUSPENSE DATE

4/24

PROJECT NOTIFICATION REFERRAL

TO: Dr. Robert Stephenson
St. Archeologist
USC
Columbia, SC 29208

he attached project notification is being referred to your agency in ccordance with Office of Management and Budget Circular A-95. This ystem coordinates the review of proposed Federal or federally assisted development program nd projects. Please provide comments below, relating the proposed project to the plans, olicies, and programs of your agency. All comments will be reviewed and compiled by the tate Clearinghouse. Any questions may be directed to this office by phone at 758-2946. lease return this form prior to the above suspense date to:

tate Clearinghouse
ivision of Administration
205 Pendleton Street
olumbia, South Carolina 29201

Signature Elmer C. Whitten Jr.

Name Elmer C. Whitten, Jr.

RESULTS OF AGENCY REVIEW

☒ PROJECT CONSISTENT WITH AGENCY PLANS AND POLICIES

☐ AGENCY REQUESTS CONFERENCE TO DISCUSS COMMENTS

☐ AGENCY COMMENTS ON CONTEMPLATED APPLICATION AS FOLLOWS:

See attached environmental impact statement (Research Manuscript Series, No. 70, Institute of Archeology and Anthropology, University of South Carolina).

(Use separate continuation sheets if necessary)

FOR THE REVIEWING AGENCY:
SIGNATURE: Robert L. Stephenson DATE: April 3, 1975

TITLE: Director and State Archeologist PHONE: 777-8170

AN ARCHEOLOGICAL SURVEY OF A PORTION OF THE UPPER NEW RIVER WATERSHED IN JASPER COUNTY, SOUTH CAROLINA

by

Travis L. Bianchi

Research Manuscript Series No. 70

Prepared by the
INSTITUTE OF ARCHEOLOGY AND ANTHROPOLOGY
UNIVERSITY OF SOUTH CAROLINA
March, 1975

INTRODUCTION

In December of 1974 the Institute of Archeology and Anthropology of the University of South Carolina conducted an archeological site survey on a portion of the Upper New River Watershed in Jasper County. This survey, performed under contract to the Soil Conservation Service of the United States Department of Agriculture, involved surface investigation of an approximately 25 mile network of proposed drainage channel construction, extension and enlargement.

The purpose of this project was to locate and record any archeological sites, either prehistoric or historic, that might be destroyed or endangered by construction activity, and to make recommendations regarding the preservation or salvage of those sites.

DESCRIPTION OF THE SURVEY AREA

The survey area lies in that part of South Carolina defined as the Atlantic Coast Flatwoods with elevations ranging from sea level to 200 feet. The climate is warm-temperate to subtropical with a 260- to 280-day growing season and an average annual precipitation of 50 inches. Habitats presently found in the general area include riverine wetlands, forests, and interspersed grasslands, croplands, pine plantations and orchards (Corps of Engineers 1972: 5, 6, and 7).

The survey area itself lies in and around Calf Pen Bay and Great Swamp and is comprised almost entirely of pine plantations and shrub and wooded swamps. The terrain is flat and wet and drainage is very poor although there is already an existing network of drainage channels.

Cropland and pastureland are found on some of the higher, better drained land on the edge of Calf Pen Bay and Great Swamp.

BACKGROUND

Documentary research prior to field investigation did not indicate any archeological or historical sites lying within the path of channel construction or in the general area. Major sources consulted were:

Archeological site files at the Institute of Archeology and Anthropology, University of South Carolina, Columbia.

Environmental Reconnaissance of the Charleston District. Prepared by the U. S. Army Corps of Engineers, Washington, 1972.

Historic sites records of the South Carolina Department of Archives and History, Columbia.

Mills Atlas of South Carolina by Robert Mills. Robert Pearce Wilkins and John D. Keels, Jr., Columbia, 1965.

THE SURVEY

The method employed for this survey was visual reconnaissance of the soil surface for cultural material. The entire channel network, both proposed and existing, was covered with emphasis on exposed areas such as fields, roads, and pastures. No archeological sites of any nature were located in or near the path of channel construction.

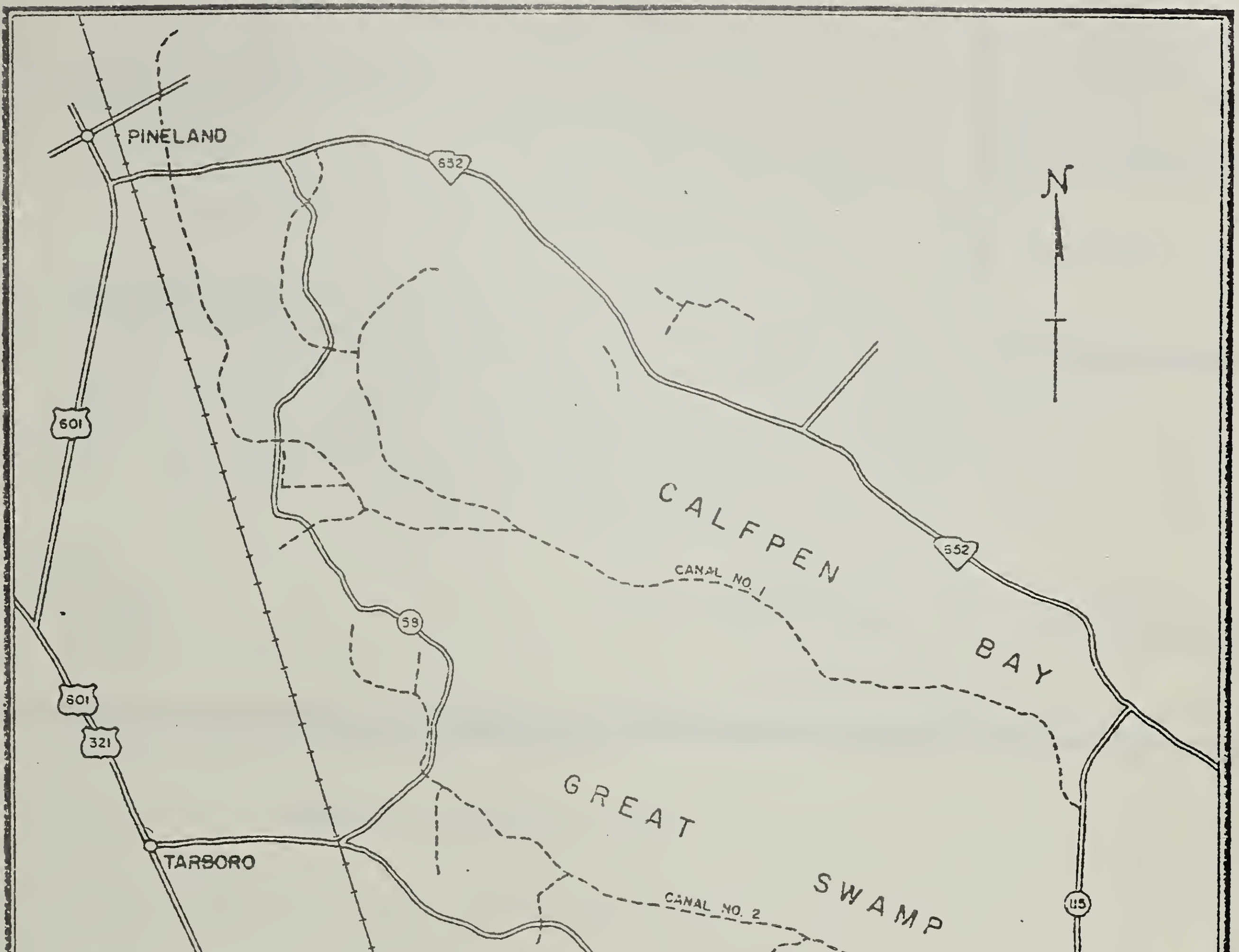
Due to the nature of this project, installation of drainage channels in low-lying areas, it would tend to avoid the type of terrain utilized by aboriginal or historic peoples for habitation or agriculture. Probably hunting and trapping occurred within the reaches of Calf Pen Bay and Great Swamp to a considerable extent. However, locating the sites created

by such activities is beyond the scope of a survey such as this. Trapping sites and the sites of hunting kills would be small in area, yield little or no cultural refuse as compared to a habitational site, and considering the terrain, be almost impossible to locate except by chance. The possibility exists, nonetheless, that construction activities may reveal sites of this nature and should that occur, the Institute of Archeology should be notified immediately so that it can determine whether salvage excavation is required.

SUMMARY AND ACKNOWLEDGEMENTS

No archeological sites were located as a result of this survey. Thus, it does not appear, on the basis of presently available information, that construction of additional drainage channels or enlargement of the presently existing channels on this portion of the Upper New River Watershed will damage or endanger the archeological resources of South Carolina. Should construction reveal the presence of archeological material the Institute of Archeology and Anthropology should be notified immediately.

The author would like to thank Mr. Wilbur Campbell of the Soil Conservation Service for his most comprehensive and thorough assistance with this project. Mr. Harvey Lucas and Mr. Jim Wilson of the Ridgeland SCS office were also instrumental in insuring that this project was successfully completed. Cypress Woods Plantation Company, owner of the property on which the survey was conducted was most helpful in supplying needed assistance.


PINELAND
632
N
CALFPEN BAY
CANAL NO. 1
652
601
59
601
321
GREAT SWAMP
TARBORO
CANAL NO. 2
115
22
SOUTHERN
601
321
SOUTH CAROLINA
SITE
TILLMAN
LEGEND
EXISTING AND PROPOSED CHANNELS
AN ARCHEOLOGICAL SURVEY ON THE UPPER NEW RIVER WATERSHED JASPER COUNTY, S.C.
0 2000 4000 6000 8000
SCALE IN FEET

South Carolina
Project Notification & Review System

PROJECT NOTIFICATION REFERRAL

STATE APPLICATION IDENTIFIER
Clearinghouse Use Only
CONTROL NUMBER
DIST. 10 NO. 2002 FY 5
SUSPENSE DATE 4/24

0: St. Land Resources Conservation
Post Office Box 11708
Columbia, SC 29211

he attached project notification is being referred to your agency in ccordance with Office of Management and Budget Circular A-95. This stem coordinates the review of proposed Federal or federally assisted development programs d projects. Please provide comments below, relating the proposed project to the plans, licies, and programs of your agency. All comments will be reviewed and compiled by the ate Clearinghouse. Any questions may be directed to this office by phone at 758-2946. ease return this form prior to the above suspense date to:

ate Clearinghouse
ivision of Administration
5 Pendleton Street
umbia, South Carolina 29201

Signature Elmer C. Whitten Jr.
Name Elmer C. Whitten, Jr.

RESULTS OF AGENCY REVIEW

☑ PROJECT CONSISTENT WITH AGENCY PLANS AND POLICIES

☐ AGENCY REQUESTS CONFERENCE TO DISCUSS COMMENTS

☐ AGENCY COMMENTS ON CONTEMPLATED APPLICATION AS FOLLOWS:

lan should provide for effective water management practices
t would benefit the entire watershed. Some of the proposed
[illegible] [illegible] to be reopened. Location of new canals
[illegible] to be placed with [illegible] consideration being
iven to natural drainage ways.

(Use separate continuation sheets if necessary)

FOR THE REVIEWING AGENCY:
SIGNATURE:
TITLE: [illegible]
DATE: [illegible] 15, 1975
PHONE: [illegible]

COMMISSION MEMBERS:

NCENT CAGGIANO, JR., CHAIRMAN
50 Overbrook Drive
affney, S. C. 29340

OHN S. WHALEY
admalaw Island, S. C. 29487

LYDE D. UMPHLETT
O. Box 817
oncks Corner, S. C. 29461

R. L. SCARBOROUGH
Box 68
Eastover, S. C. 29044

G. W. HORTON
Route 4
Pageland, S. C. 29728

JOHN W. PARRIS
Executive Director

STATE OF SOUTH CAROLINA

LAND RESOURCES
CONSERVATION COMMISSION

May 30, 1975

Elmer C. Whitten, Jr.
State Clearinghouse
Division of Administration
Edgar Brown Building
Columbia, South Carolina 29201

Dear Mr. Whitten:

This is to revise our A-95 report of April 4, 1975, concerning the Upper New River Watershed Project located in Beaufort and Jasper Counties, S. C. After discussing our comments with the originating agency, it appears that our concern can be worked out during the design stage of the project. This eliminates any implied objection.

Thank you for giving us the opportunity to review this project.

Sincerely,

Roger W. Mudd

Roger W. Mudd, Chief
Division of Land Resource
Data Acquisition & Analysis

RWM/yct
cc: G. E. Huey

South Carolina
Project Notification & Review System

PROJECT NOTIFICATION REFERRAL

STATE APPLICATION IDENTIFIER

Clearinghouse Use Only
CONTROL NUMBER

DIST.	NO.	FY
10	2002	5

SUSPENSE DATE
4/24

: Buddy Jennings
PRT

attached project notification is being referred to your agency in ordance with Office of Management and Budget Circular A-95. This tem coordinates the review of proposed Federal or federally assisted development programs projects. Please provide comments below, relating the proposed project to the plans, icies, and programs of your agency. All comments will be reviewed and compiled by the te Clearinghouse. Any questions may be directed to this office by phone at 758-2946. ase return this form prior to the above suspense date to:

te Clearinghouse
ision of Administration
5 Pendleton Street
umbia, South Carolina 29201

Signature Elmer C. Whitten Jr.
Name Elmer C. Whitten, Jr.

RESULTS OF AGENCY REVIEW

☑ PROJECT CONSISTENT WITH AGENCY PLANS AND POLICIES

☐ AGENCY REQUESTS CONFERENCE TO DISCUSS COMMENTS

☐ AGENCY COMMENTS ON CONTEMPLATED APPLICATION AS FOLLOWS:

(Use separate continuation sheets if necessary)

FOR THE REVIEWING AGENCY:
SIGNATURE: [illegible] DATE: 4-1-75
TITLE: Planning Mgr PHONE: 758-[illegible]

South Carolina
Project Notification & Review System

PROJECT NOTIFICATION REFERRAL

STATE APPLICATION IDENTIFIER

Clearinghouse
Use Only
CONTROL NUMBER

DIST.	NO.	FY
10	2002	5

SUSPENSE DATE
4/24

TO:
S. C. Forestry Commission
P. O. Box 287
Columbia, SC 29202

e attached project notification is being referred to your agency in ccordance with Office of Management and Budget Circular A-95. This stem coordinates the review of proposed Federal or federally assisted development progran d projects. Please provide comments below, relating the proposed project to the plans, licies, and programs of your agency. All comments will be reviewed and compiled by the ate Clearinghouse. Any questions may be directed to this office by phone at 758-2946. ease return this form prior to the above suspense date to:

ate Clearinghouse
vision of Administration
5 Pendleton Street
umbia, South Carolina 29201

Signature Elmer C. Whitten Jr.
Name Elmer C. Whitten, Jr.

RESULTS OF AGENCY REVIEW

☒ PROJECT CONSISTENT WITH AGENCY PLANS AND POLICIES

☐ AGENCY REQUESTS CONFERENCE TO DISCUSS COMMENTS

☐ AGENCY COMMENTS ON CONTEMPLATED APPLICATION AS FOLLOWS:

APR 10 1975

(Use separate continuation sheets if necessary)

FOR THE REVIEWING AGENCY:
SIGNATURE:
DATE: April 8, 1975
TITLE: State Forester
PHONE: 758-2261

Project Notification & Review System

PROJECT NOTIFICATION REFERRAL

S. C. Dept of Agriculture
Post Office Box 11280
Columbia, SC 29211

STATE APPLICATION
IDENTIFIER

Clearinghouse
Use Only
CONTROL NUMBER

DIST.	NO.	FY
10	2002	5

SUSPENSE DATE

4/24

attached project notification is being referred to your agency in rdance with Office of Management and Budget Circular A-95. This em coordinates the review of proposed Federal or federally assisted development program projects. Please provide comments below, relating the proposed project to the plans, cies, and programs of your agency. All comments will be reviewed and compiled by the e Clearinghouse. Any questions may be directed to this office by phone at 758-2944. se return this form prior to the above suspense date to:

e Clearinghouse
sion of Administration
Pendleton Street
mbia, South Carolina 29201

Signature Elmer C. Whitten Jr

Name Elmer C. Whitten, Jr.

RESULTS OF AGENCY REVIEW

☑ PROJECT CONSISTENT WITH AGENCY PLANS AND POLICIES

☐ AGENCY REQUESTS CONFERENCE TO DISCUSS COMMENTS

☐ AGENCY COMMENTS ON CONTEMPLATED APPLICATION AS FOLLOWS:

(Use separate continuation sheets if necessary)

FOR THE REVIEWING AGENCY:
SIGNATURE: Ralph M. [illegible] DATE: 4/21/75

TITLE: Deputy Commissioner PHONE: 758-2426

State of South Carolina
Water Resources Commission

Clair P. Guess, Jr.
Executive Director

June 5, 1975

Mr. G. E. Huey
State Conservationist
Soil Conservation Service
240 Stone Ridge Drive
Columbia, South Carolina 29210

Attn: Mr. Norman Shuler

Dear Mr. Shuler:

The Water Resources Commission staff has reviewed the work plan and draft environmental impact statement for the Upper New River Watershed project.

This agency has cooperated with the Soil Conservation Service previously in the preparation of this plan. We offer no additional comments at this time.

Sincerely,

Foster D. Coleman
Civil Engineer

FDC:rhv

APPENDIX D - WATER WELLS, MAXIMUM CONSUMPTION FROM WELLS AND THEIR CHEMICAL ANALYSES 1/

Upper New River Watershed, South Carolina

Well Location and Number	Maximum Consumption MGD	Test Date	Solids 2/	Alkinity	Calcium	Magnesium	Hardness	Iron	Chlorides	Acidity	Copper	Zinc
Ridgeland 127001	3.53 (3 wells)	05-72	208	153	28.0	6.1	95	.0	9	8.0	.0	.0
		11-72	188	154	10.0	5.9	49	.0	7	7.9	.0	.1
		06-73	208	146	42.0	6.2	130	.0	7	8.3	.0	.0
		10-73	186	148	34.0	5.9	109	.2	6	7.8	.1	.1
Hardeeville 127002	0.180 (2 wells)	12-71	150	103	11.2	7.7	60	.0	10	7.7	.0	.4
		05-72	152	105	10.7	7.4	57	.0	9	8.1	.0	.0
		11-72	150	108	11.2	7.1	57	.0	7	8.2	.0	.0
		06-73	180	106	11.8	7.6	61	.0	5	8.3	.0	.0
West Hardeeville High School 727100	No rate (1 well)	10-73		105	10.3	7.5	57	.3	8	8.3	.1 3/	.1
Jasper High School 727101	No rate (1 well)	10-73		149	38.0	6.9	123	.2	7	8.0	.1 3/	.1
Thomas Heyward Academy 727103	No rate (1 well)	10-73		146	43.0	6.2	133	.2	9	8.3	.1 3/	.1

1/ South Carolina Department of Health and Environmental Control Report, 1974.
2/ All measured in parts per million.
3/ Less than

December 1974

APPENDIX E - SOUTH CAROLINA DRINKING WATER STANDARDS 1/

The South Carolina Department of Health and Environmental Control collects samples of water from the distribution systems of public water supplies in South Carolina, and conducts chemical analyses in accordance with the Law, Rules and Regulations for Waterworks Systems in the State of South Carolina. These analyses are designed to determine if the finished water meets standards for chemical quality as set forth in the 1962 U.S. Public Health Service Drinking Water Standards. These analyses are also used to evaluate treatment processes where such processes are employed.

Characteristic or Chemical Substance	Limit
Total Solids	Should not exceed 500 mg/1
Turbidity	Should not exceed 5 t.u.
Color	Should not exceed 15 units
Alkalinity	Should not exceed 500 mg/1
Calcium	Related to hardness
Magnesium	Related to hardness
Hardness	Should not exceed 100 mg/1
Sodium	No standard. Provided as information for medical doctors when requested
Iron	Should not exceed 0.3 mg/1
Chloride	Should not exceed 250 mg/1
pH	Acceptable range from 6.5 to 8.5
Manganese	Should not exceed 0.05 mg/1
Copper	Should not exceed 1.0 mg/1
Zinc	Should not exceed 5.0 mg/1
Potassium	No standard. Provided as information for medical doctors when requested
Mercury	Should not exceed 0.5 ppb
Chromium	Should not exceed 0.05 mg/1
Cadmium	Should not exceed 0.01 mg/1
Lead	Should not exceed 0.05 mg/1

1/ Law, Rules and Regulations for Waterworks Systems in the State of South Carolina, South Carolina State Board of Health, November 1970.

APPENDIX F - QUALITY STANDARDS FOR CLASS "SB" WATERS [1]

Class "SB" waters are suitable for bathing and any other usages, except shellfishing for market purposes, in accordance with the requirements of the South Carolina Department of Health and Environmental Control. They are also suitable for uses requiring water of lesser quality.

Item	Specifications
1. Garbage, cinders, ashes, oils, sludge or other refuse	None
2. Sewage or waste effluents	None which are not effectively disinfected
3. Dissolved oxygen	Not less than five mg/l
4. Toxic wastes, deleterious substances, colored or wastes	None alone or in combination with other substances or wastes amounts as to be injurious to edible fish or the culture or propagation thereof, or which in any manner shall adversely affect the flavor, color, odor, or sanitary condition thereof; to make the waters unsafe or unsuitable for bathing or impair the waters for any other best usage as determined for the specific waters which are assigned to this class.
5. Fecal coliform	Not to exceed a geometric mean of 200/100 ml; nor shall more than 10 percent of the samples in any 30 day period exceed 400/100 ml.
6. pH	Shall not vary more than one-half of a pH unit above or below that of effluent-free waters in the same geographical area having a similar total salinity, alkalinity and temperature, but not lower than 6.75 or above 8.5.

---

[1] Water Classification Standards System for the State of South Carolina, South Carolina Pollution Control Authority, 1972.